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BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS
ROBERT "BOB" BURNS - CHAIRMAN
BOYD DUNN
SANDRA D. KENNEDY
JUSTIN OLSON
LEA MÁRQUEZ PETERSON

IN THE MATTER OF THE APPLICATION OF TUCSON ELECTRIC POWER COMPANY FOR APPROVAL OF ITS 2021 ENERGY EFFICIENCY IMPLEMENTATION PLAN AND FOR WAIVER UNDER A.A.C. R14-2-2419.	DOCKET NO. E-01933A-20-0168 **APPLICATION**

Tucson Electric Power Company ("TEP" or the "Company"), through undersigned-counsel, hereby submits for approval its 2021 Energy Efficiency Implementation Plan ("2021 EE Plan") in compliance with Arizona Administrative Code ("A.A.C.") R14-2-2401, *et seq*. TEP also requests approval of a: (i) the Demand Side Management Surcharge ("DSMS") will remain at $0.0028898 per kWh for residential customers; (ii) Plan of Administration for its DSM Surcharge; and (iii) waiver pursuant to A.A.C. R14-2-2419 from the 2021 Energy Efficiency Standard set forth in A.A.C. R14-2-2404(B). In compliance with A.A.C. R14-2-2405(C) customers will be notified of the 2021 EE Plan filing via bill message to commence with the first billing cycle of August 2020.

Accordingly, TEP requests the Commission issue an order prior to December 31, 2020, to be effective January 1, 2021, that approves:

1. TEP 2021 Energy Efficiency Implementation Plan;

2. The proposed DSM Surcharge;

3. The Plan of Administration for its DSM Surcharge; and

4. The requested waiver of the 2021 Energy Efficiency Standard

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RESPECTFULLY SUBMITTED this 30th day of June 2020.

TUCSON ELECTRIC POWER COMPANY

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efiled this 30th day of June, 2020, with:

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Tucson Electric Power

Tucson Electric Power Company

2021

Demand Side Management

Implementation Plan

June 30, 2020

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Executive Summary

The Tucson Electric Power Company ("TEP" or the "Company") 2021 Demand Side Management Implementation Plan ("DSM Plan" or "Plan")[1] sets forth the Company's plan to achieve energy and demand savings through cost-effective energy efficiency and load management efforts, in compliance with Arizona Administrative Code ("A.A.C") R14-2-2401, *et seq*. This DSM Plan describes how the Company has demonstrated compliance with the cumulative EE Standard ("Standard") set forth in A.A.C. R14-2-2404(B) in previous years, and how TEP plans to continue working with customers to achieve cost-effective energy and demand savings, while producing substantial environmental benefits for our community.[2]

This DSM Plan also describes how TEP's view of energy efficiency and demand side management continues to evolve. The Company is looking to the future with a broader, more strategic approach to demand side management programs that best align customer offerings with TEP's system resource needs. Instead of simply focusing on achieving annual kilowatt-hour ("kWh") savings, we propose to broaden our efforts with a greater focus on load shifting, peak demand management, and beneficial electrification to best address changing resource needs and maximize benefits for customers.

As new distributed energy resources are continually being added to the grid, energy management has become increasingly dynamic and complex. While energy efficiency efforts that achieved year-round kWh reductions sufficed in previous years, the Company now needs new approaches to load management that help match the timing of demand with the supply of intermittent clean resources, when they are available. TEP is responding to this changing market need with a refined set of customer programs and technologies that are designed to drive time-specific energy and demand savings, as well as time-specific strategic load increases when they provide benefits for customers and the electric grid.

To accomplish this, TEP has designed a DSM portfolio that combines the best of traditional energy efficiency programs with load management practices such as demand response, load shifting, energy storage, and beneficial electrification. Through this combination the Company believes it can deliver higher value savings for participants, while helping defer the need for future infrastructure investments and improving system utilization to benefit all customers. The portfolio comprises a suite of innovative programs designed to educate customers about energy management and encourage adoption of a host of technologies such as smart thermostats and advanced water heater controls. These connected DSM technologies provide customers with energy efficiency savings, while also supporting demand response capabilities and load shifting objectives that provide significant added grid flexibility benefits.

The proposed portfolio includes 16 new measures and continues 12 existing programs, with some proposed modifications. Among this year's proposed modifications, the Company plans to lower administrative costs and improve cost effectiveness by combining the current Commercial New Construction program and Small Business Direct Install program into the Commercial and Industrial Comprehensive program. The Plan offers carbon emissions and customer bill savings opportunities with new pilot measures that encourage the electrification of fossil fuel powered forklifts and airport ground vehicles, as well as reducing pollution from idling diesel trucks by promoting installation of electric hook ups to power truck refrigeration equipment while loading and unloading at supply facilities.

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[1] Definitions for the EE Plan are contained in Appendix E.

[2] The Company is still, however, requesting a waiver herein pursuant to A.A.C. R14-2-2419 from the cumulative EE Standards set forth in A.A.C. R14-2-2404(B).

To determine which measures best align with the most opportune times, the Company assesses the annual 8,760 hourly load shape of savings produced by every existing and proposed measure in our portfolio as it relates to the Company's resource needs. This analysis enables us to prioritize measures according to their relative time-differentiated savings values. Using this objective approach, TEP is able to place increased emphasis on measures that produce higher percentages of savings during on peak hours and on measures that facilitate load shifting into midday hours when solar production is highest. The Plan places more emphasis on peak demand savings and load shifting flexibility, but at the same time TEP maintains strong support and funding for energy efficiency measures, particularly to help support schools and limited income customers.

As Arizona's fast changing energy landscape transitions to a more decentralized grid, it is imperative that TEP quickly adjust and adapt. A changing landscape requires more extensive load management,-more direct engagement with customers and a wider variety of stakeholders, and the ability to nimbly address evolving customer needs, emerging technology solutions, and changing market conditions in a timely manner. To meet these needs TEP proposes to establish an on-going technology innovation and experimental program framework, with predefined guidelines and parameters. This will allow the Company to quickly propose and launch future efforts outside of the traditional utility DSM Plan filing and approval cycle. This framework will establish preapproved Commission guidelines and review processes that will allow TEP to conceive new, proof-of-concept initiatives with limited time and participation parameters, in order to test potential combinations of technologies, program designs, data analytics and customer education channels – helping us create programs that more nimbly respond to customer needs.

This year's DSM Plan targets an estimated 138,400MWh of annual energy savings at a lifetime cost of $0.012 per kWh, and providing approximately 69.4 MW of peak demand savings. This represents a 9.2% increase in peak demand reductions compared to the 2018 DSM Plan. As directed by Decision 75975, TEP has worked to increase its focus on peak demand savings, however, TEP is currently capped at claiming no more than 10% of annual savings from demand response programs. TEP requests a waiver of the 10% cap in A.A.C. R-14-2-2404(C) so that TEP may count all these valuable peak demand reductions and energy savings toward the annual savings targets.

In summary, TEP's 2021 DSM Plan contains a balanced collection of technologies, customer incentives, and programs that will provide its residential and non-residential customers with a flexible and responsive portfolio. This will enable TEP to cost-effectively deliver energy and demand savings, reduce customer bills during a period of economic challenges, support clean energy and clean air objectives, prudently manage resources in a fast changing energy marketplace, and provide safe, reliable service to a diverse and growing community of customers and stakeholders.

I. Introduction

Tucson Electric Power Company ("TEP or the "Company") is filing this 2021 Demand Side Management Plan ("2021 Plan") in the midst of an evolving energy policy landscape. The Arizona Corporation Commission ("Commission") is in the process of considering adopting a new clean energy standard that could include significant modifications to several of its rules, including Energy Efficiency, Renewable Energy Standard and Integrated Resource Planning. Moreover, at the time of this filing, the Company is in the final stages of completing its 2020 Integrated Resource Plan ("IRP"). TEP's 2020 IRP will include a strategy to achieve significant reductions in the Company's carbon emissions. One key component of this strategy relies on a continued commitment to implementing cost-effective Demand Side Management ("DSM") programs that are designed to benefit our customers and TEP's system by reducing peak demands. The Company is not currently proposing any changes to the current DSM surcharge or cost recovery of energy efficiency ("EE") programs. However, as the Commission promulgates its new energy rules, it should also consider alternative funding and recovery mechanisms for DSM plans, including direct investment by utilities as noted in a recent letter filed by Chairman Burns.[3] The treatment of DSM programs as rate base investments can provide several benefits, including, but not limited to, reducing rates for customers by smoothing out the recovery of these investments over time and aligning the cost recovery of DSM programs with other supply-side resources.

This DSM Plan documents the Company's objective to achieve energy and demand savings through cost-effective energy efficiency and load management programs for 2021. TEP hereby submits this DSM Plan for approval by the Commission in compliance with A.A.C. R14-2-2405 that requires TEP to describe how it has demonstrated compliance with the EE Standard ("Standard") set forth in A.A.C. R14-2-2404(B), as well as plans for future years.

TEP has designed its 2021 DSM Plan to cost-effectively yield an estimated 138,400 MWh of annual energy savings at a lifetime cost of $0.012 per kWh, providing approximately 69.4 MW of peak demand savings.

The projected portfolio budget is $22,942,780 million. In Decision 77085, the Commission set the DSMS at $0.0028898 per kWh for residential ratepayers and at 2.8292% for non-residential customer bills, before the Renewable Energy Standard Tariff ("REST"), Lost Fixed Cost Recovery ("LFCR") surcharge, assessments and taxes. The current DSMS is forecasted to collect approximately the same amount as the 2021 DSM budget, so TEP is prepared to maintain the DSMS at the current level.

In 2019 (the most recent year of final results available) TEP achieved cumulative savings of 1,566,806 MWh, which represents 18.74% cumulative annual energy savings as a percent of retail sales, compared to the annual EE Standard of 19.5% for 2019 as set forth in A.A.C. R14-2-2404(B). By the end of 2020, the Company forecasts it will have achieved an estimated 1,822,239 MWh in cumulative savings for 22.35% of adjusted retail sales, and the Company anticipates that by the end of 2021 it will achieve total cumulative savings of 1,960,610 MWh, which represents 24.91% of adjusted retail sales. TEP will continue to strive to maximize the cost-effective savings achieved with all monies spent.

[3] https://docket.images.azcc.gov/E000006491.pdf

In Decision No. 75975 (February 24, 2017), TEP was ordered to increase the focus on DSM programs that reduce energy demand during afternoon/early evening peak periods. As a result, TEP's 2021 DSM Plan is projected to provide a 9.2% increase in peak demand savings as compared to the 2018 DSM Plan. However, due to A.A.C. R-14-2-2404 (c) in the EE Standard, TEP is currently capped at claiming no more than 10% of annual energy savings from demand response programs. The company requests a waiver to A.A.C. R-14-2-2404 (c) to allow TEP to claim these valuable cost-effective savings that are aligned with the Commission's current policy goals.

TEP's proposed 2021 portfolio budget, portfolio savings, net benefits, and benefit-cost results are summarized in Table 1.

Table 1: Summary of Proposed 2021 TEP Portfolio Costs, Savings, and Benefits

Year	Total Program Budget ($/year)	Annual Energy Savings (MWh)	Lifetime Energy Savings (MWh)	Peak Demand Savings (MW)	$/kWh (Lifetime)	Portfolio Societal Test Ratio
2021	$22,942,780	138,371	1,953,082	69.38	$0.012	2.02

Requested Approvals

TEP respectfully requests the following:

1. Commission approval of its 2021 DSM Implementation Plan on or before December 31, 2020.
2. Approval of the 2021 DSM Implementation Plan budget for $22,942,780;
3. Approval for the DSMS to remain set at $0.0028898 per kWh of retail sales for residential customers, and 2.8292% of retail revenue for non-residential customers;
4. Approval of new proposed DSM measures and pilot measures;
5. A waiver to provision A.A.C. R-14-2-2404(C) to allow TEP to claim all cost effective savings from demand response programs offered in 2021.
6. Approval to establish an ongoing program framework with pre-approved guidelines and parameters under which the Company can quickly propose and launch future testing initiatives outside of the traditional utility DSM Plan filing cycle and evaluation methodologies.

A. Implementation Plan Compliance

Each year as TEP prepares an annual DSM Implementation Plan, it carefully considers the Company's system resource requirements in light of changing technologies and customer needs to ensure that our proposed portfolio of energy efficiency and load management programs remains cost-effective and appropriate to align with current and forecasted market conditions.

At this time, current and forecasted future market conditions are notably marked by a steady influx of low-priced solar production during midday hours, followed by a steep ramp up and growing peak demand in the early evening hours. While this "duck curve" is most prominent during non-summer months, these increasing levels of renewable generation remain a factor throughout the

year. One particularly important result of this development is that kWh savings—and the measures that produce them—no longer have the same resource value throughout the day or year.

For instance, measures that produce the majority of their savings during midday hours when solar energy is abundant and avoided costs are low, now offer less resource value than measures such as smart thermostats and efficient HVAC that can reduce summer peak. And now there is more value for flexible technologies like energy storage and connected water heating that can store energy during low price hours to help integrate solar energy on the system and then discharge energy during periods of peak demand to help improve the overall energy system load factor and efficiency.

To understand these time-dependent savings values, the Company considers hourly marginal costs and analyzes the hourly load shapes (i.e. 8760 hours/year) for every measure in our portfolio to assess their resource values according to the savings they provide during high and low value times. The Company will use this to help prioritize DSM measures in the portfolio according to the percentage of savings each offers during the most valuable on-peak periods during the summer relative to values at other times of the day and the year. This analysis of resource value is one consideration in the portfolio as well as other important factors, such as community and customer needs, technology and market maturity, strategic goals, measure and incremental costs, first year and lifetime savings, and cost-effectiveness screening.

The resulting portfolio described in this 2021 DSM Plan maintains TEP's commitment to sustainable, cost-effective kWh savings, while emphasizing programs and measures that are designed to reduce peak demand, promote energy storage, and encourage customer adoption of technologies that are well-suited for advanced energy and load management. As such, this proposed portfolio is expressly designed to make progress toward the Company's energy savings, load management and demand response goals for the 2021 program year, as set forth under A.A.C. R14-2-2403. Moreover, this Plan has been crafted in accordance with Decision 75975 that ordered the Company to increase focus on peak demand reduction capability and load management programs, while considering facilitating energy storage and other advanced technologies.

As appropriate, the Company has also introduced new measures that have:

- More favorable load shapes, such as connected water heater controllers that shift load to help reduce peak demand and absorb midday solar production,

- The ability to control demand, such as smart thermostat demand response and connected water heating,

- The capacity to strategically increase load during midday hours with thermal storage, customer-sited batteries, and beneficial electrification.

The 2021 Plan also advances new initiatives including:

EXPANDED: Load Management Pilot: This pilot program was approved in Decision 77085 with a focus on residential smart thermostat demand response, grid interactive water heating,

and feeder level storage for new and existing homes. In 2021, TEP proposes to expand the pilot by extending the pilot to commercial customers. To further encourage load shifting to off-peak hours TEP proposes to offer new load management measures such as smart thermostats that are preprogrammed to align with TEP's time of use rates, connected pool pump controls, as well as HVAC thermal storage for commercial customers.

NEW: Beneficial Electrification Measures: To enable the Company's DSM portfolio to better manage flexible distributed energy resources, support clean energy, and reduce air emissions, TEP proposes to begin the promotion of beneficial electrification measures that will increase customers' energy efficiency, financial savings, and health and safety benefits, while reducing a customer's total energy costs, lowering emissions and supporting efficient use of the grid.

NEW: Innovative Customer Solutions Framework: In order to more nimbly adapt to the rapidly changing energy landscape in Arizona, TEP seeks to establish an ongoing framework that will enable the Company to find new ways to meet customer needs and provide greater ratepayer value by exploring new combinations of emerging technologies, customer messaging, financing, and data analysis. This framework will have predefined Commission-approved parameters and oversight mechanisms that will enable the Company to quickly propose and test new experimental offerings outside of the more time-consuming traditional utility DSM Plan filing cycle, program designs, and evaluation methodologies.

These and other changes are further explained in the program descriptions in Section III of the DSM Plan. Additional detail is included in Appendix B, Table B-6.

Table 2 shows the progress towards the Energy Efficiency Standard. TEP tracks progress to the Standard by dividing the current year Cumulative Annual Energy Savings by the previous year's Retail Energy Sales.

Table 2: TEP Cumulative Energy Savings as Compared to the Standard for Years 2010 – 2021

Year	Retail Energy Sales (MWh)	Incremental Annual Energy Savings (MWh)	Cumulative Annual Energy Savings (MWh)	Cumulative Annual Savings as a % of Prior Year Retail Sales (%)	Cumulative EE Standard Savings as a Percent (%)
2010	9,291,788	-	-	-	-
2011	9,332,107	139,539	139,539	1.50%	1.25%
2012	9,264,818	105,655	245,194	2.63%	3.00%
2013	9,278,918	177,425	422,619	4.56%	5.00%
2014	8,520,347	221,215	643,834	6.94%	7.25%
2015	8,431,556	168,600	812,434	9.54%	9.50%
2016	8,387,869	199,466	1,011,900	12.00%	12.00%
2017	8,415,003	172,198	1,184,098	14.12%	14.50%
2018	8,359,804	181,027	1,365,125	16.22%	17.00%
2019	8,152,173	201,681	1,566,806	18.74%	19.50%
2020	7,869,893	255,433	1,822,239	22.35%	22.00%
2021		138,371	1,960,610	24.91%	-

B. DSM Surcharge

The DSMS will remain at $0.0028898 per kWh of retail sales for residential customers and 2.8292% of non-residential customer bills, before RES, LFCR, assessments, and taxes.

C. DSM Programs

The section below includes a list of programs in TEP's DSM Plan. Table 3 below includes the estimated budgets by program. Table 4 below includes an estimate of the annual kWh and kW savings, estimated total cost and cost per kWh reduction for each program. Detailed DSM program descriptions are included in Section III of this document.

1. Continued/Existing Program Descriptions

Residential Sector

- Low-Income Weatherization
- Shade Tree

Non-Residential Sector

- Combined Heat and Power ("CHP")
- Commercial & Industrial Demand Response Program

Behavioral Sector

- Behavioral Comprehensive
- Home Energy Reports

Support Sector

- Energy Codes and Standards Enhancement

- Consumer Education and Outreach

Utility Improvement Sector

- Conservation Voltage Reduction
- Generation Improvements & Facility Upgrades

2. Modified or New Programs Descriptions

Demand Side Management Initiatives

- Load Management Pilot Program
- Beneficial Electrification
- Innovative Customer Solutions Framework

Residential Sector

- Efficient Products
- Existing Homes
- Multi-Family
- Residential New Construction

Non-Residential Sector

- Commercial & Industrial ("C&I") Comprehensive
    - Commercial New Construction
    - Small Business Direct Install
- School Energy Efficiency Pilot Program

Behavioral Sector

- N/A

Support Sector

- N/A

Utility Improvement Sector

- N/A

3. Discontinued Program Descriptions

Residential Sector

- Electric Vehicles

Non-Residential Sector

- NA

4. Estimated Cost of Each DSM Program

The estimated costs for each DSM program are included in Table 3 below.

Table 3: TEP 2021 Estimated Program Budget by Program

Program	Incentives	Program Delivery	Program Marketing	Utility Program Administration	Measurement, Evaluation and Research (MER)	Total Budget
Residential Sector						
Low Income Weatherization	$714,876	$217,492	$15,119	$20,159	$40,319	$1,007,966
Multi-Family	$998,924	$895,484	$2,219	$459	$79,045	$1,976,131
Residential New Construction	$875,244	$55,878	$39,566	$42,204	$42,204	$1,055,095
Shade Trees	$166,414	$0	$150	$0	$3,399	$169,964
Existing Homes	$1,907,541	$741,146	$17,423	$28,064	$112,257	$2,806,433
Efficient Products	$1,017,039	$613,288	$144,814	$18,686	$74,743	$1,868,570
Low Income Weatherization	$714,876	$217,492	$15,119	$20,159	$40,319	$1,007,966
Subtotal	**$5,680,039**	**$2,523,288**	**$219,292**	**$109,572**	**$351,967**	**$8,884,158**
Non-Residential Sector						
C&I Comprehensive	$4,124,668	$1,150,500	$112,178	$42,067	$179,485	$5,608,898
Commercial DLC	$330,757	$96,392	$15,000	$7,851	$50,000	$500,000
Commercial Schools	$850,789	$111,282	$0	$0	$40,086	$1,002,157
Subtotal	**$5,306,214**	**$1,358,174**	**$127,178**	**$49,918**	**$269,571**	**$7,111,055**
Behavioral Sector						
Home Energy Reports	$58,297	$334,533	$8,540	$8,540	$17,080	$426,990
Behavioral Comprehensive	$350,046	$203,697	$12,056	$5,956	$23,823	$595,577
Subtotal	**$408,343**	**$538,230**	**$20,595**	**$14,496**	**$40,903**	**$1,022,567**
DSM Initiatives Sector						
Beneficial Electrification Pilot Program	$30,000	$168,000	$15,000	$3,000	$84,000	$300,000
Load Management Pilot Program	$260,000	$1,456,000	$130,000	$26,000	$728,000	$2,600,000
Innovative Customer Solutions Framework	$160,000	$896,000	$80,000	$16,000	$448,000	$1,600,000
Subtotal	**$450,000**	**$2,520,000**	**$225,000**	**$45,000**	**$1,260,000**	**$4,500,000**
Support						
Education & Outreach	$0	$43,472	$326,737	$29,791	$0	$400,000

Program	Incentives	Program Delivery	Program Marketing	Utility Program Administration	Measurement, Evaluation and Research (MER)	Total Budget
Energy Codes and Standards	$0	$24,312	$0	$0	$688	$25,000
Generation Improvement & Facility Upgrades	$0	$0	$0	$0	$0	$0
Research & Development	$0	$26,361	$0	$238,384	$735,255	$1,000,000
Subtotal	**$0**	**$94,145**	**$326,737**	**$268,175**	**$735,943**	**$1,425,000**
Portfolio Total	**$11,844,597**	**$7,033,837**	**$918,803**	**$487,160**	**$2,658,384**	**$22,942,780**
Percent Cost By Category	*51.63%*	*30.66%*	*4.00%*	*2.12%*	*11.59%*	*100.00%*

5. Estimated Total Cost

Table 4: TEP 2021 Estimated Costs and Savings by Program

Program	Annual Energy Savings at Generator (MWh)	Coincident Demand Savings at Generator (MW)	Total Program Budget ($)	Cost per Lifetime kWh Saved ($/kWh)	Cost per First Year kWh Saved ($/kWh)
Residential Sector					
Low Income Weatherization	6,506	0.23	$1,007,966	$0.006	$0.155
Multi-Family	4,071	2.42	$1,976,131	$0.030	$0.485
Residential Load Management Pilot Program	0	0.00	$0	NA	NA
Residential New Construction	4,996	3.27	$1,055,095	$0.007	$0.211
Shade Trees	514	0.21	$169,964	$0.008	$0.331
Existing Homes	4,933	3.65	$2,806,433	$0.033	$0.569
Efficient Products	29,428	3.09	$1,868,570	$0.004	$0.063
Subtotal	**50,447**	**12.88**	**$8,884,158**	**$0.009**	**$0.176**
Commercial Sector					
C&I Comprehensive	47,551	7.70	$5,608,898	$0.009	$0.118
Commercial DLC	10,000	45.00	$500,000	$0.050	$0.050
Commercial Schools	2,878	0.35	$1,002,157	$0.020	$0.348
Subtotal	**60,429**	**53.05**	**$7,111,055**	**$0.011**	**$0.118**
Behavioral Sector					
Home Energy Reports	8,612	1.32	$426,990	$0.017	$0.050
Behavioral Comprehensive	7,982	0.62	$595,577	$0.003	$0.075
Subtotal	**16,594**	**1.94**	**$1,022,567**	**$0.005**	**$0.062**
DSM Initiatives					

Program	Annual Energy Savings at Generator (MWh)	Coincident Demand Savings at Generator (MW)	Total Program Budget ($)	Cost per Lifetime kWh Saved ($/kWh)	Cost per First Year kWh Saved ($/kWh)
Load Management Pilot Program	NA	0.47	$2,600,000	NA	NA
Innovative Customer Solutions Framework	NA	NA	$1,600,000	NA	NA
Beneficial Electrification Pilot Program	NA	NA	$300,000	NA	NA
Subtotal	**NA**	**0.47**	**$4,500,000**	**NA**	**NA**
Support Sector					
Education & Outreach	NA	NA	$400,000	NA	NA
Energy Codes and Standards	10,900	1.04	$25,000	$0.002	$0.002
Generation Improvement & Facility Upgrades	NA	NA	$0	NA	NA
Research & Development	NA	NA	$1,000,000	NA	NA
Subtotal	**10,900**	**1.04**	**$1,425,000**	**$0.131**	**$0.131**
EE Standard Allowed Credits					
Total	**138,371**	**69.38**	**$22,942,780**	**$0.012**	**$0.166**

II. DSM Tariffs (A.A.C. R14-2-2406)

A. DSM Surcharge Calculations

1. Description of Current Method to Recover Costs

As approved in Decision No. 77085, TEP currently recovers costs according to a DSMS Plan of Administration ("POA") that provides for the recovery of DSM program costs, including energy efficiency and demand response programs, and energy efficiency performance incentives. The DSMS is applied to all residential customer bills as a monthly per-kWh charge, and to all non-residential customer bills as a percentage of their total monthly bill amount. The DSMS is applied monthly to every customer unless exempted by order of the Commission.

Program Costs recovered through the DSMS include, but are not limited to, the following: DSM Program development; implementation; marketing and promotion; administrative and general; legal; reporting; training and technical assistance; monitoring and metering; advertising; educational expenditures; customer incentives; research and development; data collection; tracking and information technology systems; self-direction costs; measurement; evaluation, and research ("MER"); demonstration facilities; and all other activities required to design and implement cost effective DSM Programs included in the EE Implementation Plan as approved by the Commission.

TEP includes wages and salaries for employees working to plan, implement, or manage DSM Programs in TEP base rates. If, due to the lag between rate cases, actual labor costs for employees working to plan, implement, or manage DSM Programs, exceed the amount approved in base rates, the incremental labor costs are allocated among programs and included into the calculation of the DSMS. Unless otherwise ordered by the Commission, TEP includes allowable program costs for all approved programs in the DSMS calculation. If any DSM Programs generate revenue, that revenue is included as a credit in the calculation of the DSMS.

The Performance Incentive ("PI"), as approved by the Commission in Decision No. 73912, is calculated using the lesser of: (i) 8% of the calculated Net Benefits, or (ii) the annual kWh savings from certain approved DSM Programs included in the third-party MER report, multiplied by $0.0125 per kWh, with the exception of Utility Sector programs, Support Sector programs, or any specifically excluded program. Savings from the Low-Income Weatherization Program are excluded unless the program is shown to have a benefit-cost ratio of over 1.0.

The True-Up Component is intended to refund or recover the balance of Program Costs and Performance Incentives that have been under; or over-recovered during the previous EE Plan year. The True-Up Component is included in the calculation of the subsequent year's DSMS. The True-Up Component is calculated by subtracting actual Program Costs and Program Incentives from the DSMS collections and accruals for the EE Plan year ending December 31st.

The DSMS calculation is summarized as follows:

$$\text{Residential DSMS} = \frac{(PC - TU + PI)}{E_{Tot}}$$

$$\text{Non-residential DSMS} = \frac{(PC - TU + PI) * \left(1 - \frac{E_{Res}}{E_{Tot}}\right)}{R_{Tot} - R_{Res}}$$

Where:

- PC = Program Costs forecast for the upcoming year.
- PI = Program Incentives forecast for the upcoming year.
- TU = "True-Up" component balance.
- E_{Tot} = Total retail electric sales (kWh) for the previous calendar year.
- E_{Res} = Residential retail electric sales (kWh) for the previous calendar year.
- R_{Tot} = Total retail revenue ($) for the previous calendar year.
- R_{Res} = Residential revenue ($) for the previous calendar year.

The DSMS, and the effective date, is subject to review and approval by the Commission pursuant to A.A.C. R14-2-2406(B).

III. Demand Side Management Initiatives

The following section covers pilots and innovative initiatives that serve both residential and nonresidential customers, including the Load Management Pilot Program, Beneficial Electrification, and the Innovative Customer Solutions Framework.

A. Load Management Pilot Program (Existing Program)

1. Description of program

In accordance with Decision 75975, TEP proposed a new Residential Load Management pilot program in the 2018 DSM Plan that incorporates Feeder Level Energy Storage, residential Thermal Storage, and residential Demand Response. As approved in Decision 77085, the pilot is designed to assess the potential energy and demand savings, reliability of load reductions, and systems operations benefits of commercially available residential load management technologies such as bi-directional communicating smart thermostats and water heaters, as well as feeder level batteries. This pilot was approved in early 2019 and TEP is currently working to implement the pilot. TEP will leverage current DSM programs to help market and deliver the pilot measures to potential participants and use vendor partnerships in a plan to implement and manage the following:

- **Feeder Level Energy Storage** – Feeder-level battery storage is utilized to reduce system peak, provide feeder congestion relief, and support local power quality on selected distribution feeders.

- **Thermal Storage**– To assess customer load management potential, TEP is using the principal of thermal storage—using energy during less expensive off-peak hours to heat water in order to reduce demand for hot water during on-peak hours. Connected heat pump water heaters and advanced connected water heater controls that can be retrofitted on existing water heaters will be used to reduce system peak demand, provide on-peak bill savings for participating customers, and help integrate midday solar energy onto the grid.

- **Demand Response with Connected Smart Thermostats** – To reduce system demand on peak summer days, connected smart thermostats will be used to manage participants' air conditioners ("AC") or heat pumps by adjusting thermostat settings during peak demand events. Participants will have the option to override thermostat temperature settings at any time to opt-out of load management events. As discussed in the 2018 Plan, the Company will offer customers an initial annual incentive of $40 for participating in Demand Response, with flexibility to adjust the incentive level up to $80 and offer other special promotions using a min/max model if needed to drive participation. In the 2021 DSM Plan, TEP intends to utilize smart thermostats to provide both energy efficiency and demand response benefits for customers, and as a result, TEP is allocating a portion of smart thermostat incremental costs to the Load Management pilot and the remainder to Existing Homes.

All participants in the pilot must be enrolled in one of the Commission approved time differentiated tariffs, with the exception of residential customers choosing to only participate in demand response with connected smart thermostats; those customers will be permitted to participate in smart thermostat demand response regardless of which TEP rate their home is on.

While this pilot program is available to all residential customers, marketing is emphasized in areas where the Company has prioritized distribution system needs that will have the most positive impact from load management.

2. Modifications Proposed

TEP intends to maintain the currently approved program elements, while also expanding the program as follows.

In accordance with Decision 75975, and in alignment with Decision 76313 regarding Arizona Public Service ("APS"), TEP proposes to expand the Load Management Pilot to also serve non-residential customers. This expansion will enable TEP to work with a wider variety of customer classes and technology solutions to explore the benefits of managing demand by aligning load shapes with system needs using price responsive and utility-controlled load management strategies. More specifically, it will enable the Company to acquire and pilot test a greater amount of commercially available technologies, tools and/or platforms for scheduling, managing and orchestrating distributed energy resources for both residential and non-residential segments.

TEP also requests approval to further explore opportunities for energy storage and load management by offering the following new measures.

- **New Measure for 2021: Rate Optimized Smart Thermostats** TEP proposes to offer smart thermostats that are optimized to work with TEP's time-of-use ("TOU") and demand based tariffs by automatically adjusting thermostat operation to reduce on peak demand and shift customer energy use into pre-and post-peak periods. These Wi-Fi enabled rate optimized smart thermostats will provide all of the benefits of currently approved smart thermostats (including energy efficiency savings and capability to participate in TEP demand response programs), plus they include a feature that enables customers to easily set up a customized cooling strategy for their home or business that optimizes their AC operation to save money on TEP's time of use or demand tariffs. The thermostats use adaptive learning algorithms and cloud-based controls to create customized operating schedules that intelligently pre-cool the homes prior to the on-peak period and allow temperature drift to reduce demand during peak. Depending upon customer preferences the devices can be configured for greater comfort or greater savings, and customers can always adjust or override their settings at any time.

  The Company proposes to offer rate optimized smart thermostats at no cost to eligible residential customers in owner occupied and rental single-family and multifamily dwellings. Participants must enroll (or already be enrolled) in an eligible time differentiated tariff, and also agree to participate in at least one year of smart thermostat demand response in exchange for receiving the thermostat at no cost. The smart thermostats will be made available at no cost

for customers who choose to self-install. For customers who prefer contractor installation, TEP will offer a reduced installation cost through participating trade allies.

If approved, TEP proposes to promote this measure to residential customers through the Existing Homes, Multi-family, Low Income Weatherization, and Behavioral Comprehensive Programs.

- **New Measure for 2021: Connected Pool Pump Controls**

TEP is proposing a new pilot measure for connected pool pump controls that will make it easy for customers with pools to run their pool pumps exclusively during off-peak times, and to remotely monitor and control pumps to save energy and money. Connected pool pump controllers offer customers the ability to remotely monitor and adjust pump timing to shift energy consumption away from on peak hours and save money on TOU and demand rate plans. An accompanying mobile app can make it easy for customers to monitor and adjust pumping schedules, and easily reduce operating times during cooler months to save energy and lower bills. The connected capabilities of the pumps also create the potential for future utility demand response programs. Connected pool pumps can be valuable demand response assets that could be turned on to utilize excess solar energy on the grid when it is available, since pool pump operating times can typically be shifted without impacting customer lifestyle or comfort.

Connected pumps controls are available that can retrofit to existing pumps or built into new replacement pumps. TEP proposes to offer customers a $30 incentive to encourage adoption of both new and retrofit connected controls, and to promote this pilot measure to residential customers primarily through the pool component of the Efficient Products program.

- **New Measure for 2021: HVAC Thermal Storage**

TEP proposes to pilot the installation and operation of heating, ventilation and air conditioning ("HVAC") thermal storage units that use ice making or similar thermal storage technologies to shift HVAC cooling load to off-peak hours. These units serve as thermal batteries by making ice or chilled water during off-peak hours and then using that ice during on-peak periods in an ice-cooled evaporator coil to chill the air supply of the customer's air conditioner. By reducing the need to use the AC compressor during peak periods, these units can significantly cut on-peak energy use while the ice melts over an extended period. Bi-directional Wi-Fi communication enables remote customer control and utility dispatch for demand response and other changes to the unit's charge and discharge settings.

Thermal storage for residential customers will be offered according to the final guidelines that are approved by the Commission for the TEP Customer-Sited Energy Storage Pilot ("CESP") Program filed in Docket E-01933A-19-0149.

Energy efficient thermal storage for commercial customers will be incentivized at between $400/kW to $800/kW, which is equivalent to the incentives TEP has proposed to be paid to residential customers under the CESP Program filing. Qualifying commercial customers must

be on a TEP TOU rate plan and must install new equipment capable of shifting 20 kW or more during the entire on peak period.

Due to the nature of load shifting offered by these units, eligibility requirements will preclude participation in this measure by customers who elect to participate in the residential battery storage measure discussed above.

- **New Measure for 2021: Customer-Sited Batteries**

  TEP proposes to support the installation and operation of residential customer sited battery storage systems to enable customers on time of use and demand rates to more effectively manage their electric consumption, reduce peak demand, absorb midday solar production, and to provide customers with backup power in case of an outage.

  Battery storage for residential customers will be offered according to the final guidelines that are approved by the Commission for the TEP CESP Program filed in Docket E-01933A-19-0149.

  Due to the nature of load shifting offered by these units, eligibility requirements will preclude participation in this measure by customers who elect to participate in the HVAC thermal storage measure discussed above.

The proposed measures and their associated metrics are shown in Appendix A.

3. Program objectives and rationale

The Load Management pilot program is intended to analyze the feasibility and effectiveness of direct load management in participating customers' homes and businesses, to study the effectiveness of various load management strategies, including thermal storage and the use of battery storage at customer locations, and to provide congestion relief and reduce system peaks. These strategies, either individually or in various combinations, will be assessed based on their ability to shift energy use and manage peak demand. The Load Management pilot program benefits all TEP customers by helping provide information about innovative new technologies that could be used to defer the expense of future energy infrastructure investments.

4. Targeted market segment

While this program will be made available to all TEP customers who want to install advanced devices in their homes or businesses to reduce energy consumption and manage peak demand, program marketing will focus on customers most likely to adopt each technology. For example, TOU-optimized smart thermostats will be targeted at residential customers. Commercial HVAC thermal storage will be primarily targeted at resorts, hospitals, government facilities, campuses and other large customers with high HVAC loads.

TEP will consider and may opt to recruit participants who are served by selected feeders identified by TEP as needing electric distribution congestion relief.

5. Estimated level of customer participation

The estimated level of customer participation for 2021 is shown in Appendix B, Table B-1. The corresponding data for proposed measures is shown in Appendix A, Table A-1.

6. Estimate of the baseline

Baseline data is not available for the new measures proposed in this pilot program. Through the pilot program TEP will evaluate both the market and technical potential of the measures and strategies.

7. Estimated societal benefits and savings

In accordance with Decision 75975, one objective of this pilot will be to determine the potential societal benefits and savings of emerging load management technologies.

8. Estimated societal costs

The estimated societal costs for 2021 are shown in Table 3.

9. Estimated environmental benefits

This pilot effort will help to determine these values.

10. Estimated benefit-cost ratio

This pilot effort will help to determine these values.

11. Marketing and delivery strategy

This pilot program will be implemented by TEP staff who will work with TEP-approved trade allies who specialize in these measures.

Eligible residential and commercial customers from the TEP service territory will be invited to participate in this pilot. Participation will be solicited mainly through traditional and digital means, and may include updates to the website, email, newsletters, direct mail promotion, outreach events, working with industry specialists, as well as through online channels such as an Online Energy Marketplace. As appropriate, marketing for all pilot measures will be emphasized in areas where the company has prioritized system assets that will have the most positive impact from load management.

For the demand response ("DR") component, TEP will leverage the existing base of residential customers who already own smart thermostats. TEP will encourage the participation of its customers who install smart thermostats through its other residential EE programs. Commercial DR will continue under the pre-existing Commercial and Industrial Demand Response Program.

Rate optimized smart thermostats and other load shifting measures will be promoted to residential customers through the Existing Homes, Multifamily, Low Income Weatherization, and Behavioral Comprehensive Programs. For single-family residences and owner-occupied multi-family units without

centralized maintenance teams, TEP will offer a reduced installation cost for the rate optimized smart thermostats and other load shifting measures through participating trade allies. The rate-optimized smart thermostats will also be made available for 'DIY' customer installs. For multifamily properties, TEP will work with the program implementation contractors to train property maintenance staff and the contractors they work with.to ensure the new rate optimized smart thermostats and other load shifting measures are properly installed and set up. For low income customers, the new rate optimized smart thermostats and other load shifting measures will be included at no charge with other measures that require direct installation. TEP will perform a pre- and post-inspection of the units to ensure proper installation.

For HVAC thermal storage and batteries, TEP will work with TEP-approved trade allies who specialize in these measures.

The connected pool pump controllers will primarily be marketed and delivered via the Efficient Products Program, including a marketing, education, and training component to the program that will increase emphasis on load shifting by educating and encouraging pool owners and pool service providers to reduce peak energy costs by timing pool pumping to occur during off peak hours.

12. Estimated annual costs and budget

Decision 75975 directs TEP to establish a $1.3 million budget for this pilot program for residential customers. In the 2021 Plan TEP proposes expanding this pilot to commercial and have allocated $2.6 million for the overall effort. The estimated annual Program costs and budget for 2021 are shown in Table 3. The estimated annual budget and costs for the Program's existing measures are shown in Appendix B, Table B-5. The corresponding data for the proposed measure is shown in Appendix A, Table A-5.

Implementation schedule

TEP plans to implement proposed program modifications after receiving the Commission's approval.

13. Description of the plan for MER

The MER plan is consistent with the strategy previously approved by the Commission.

14. Any other information relevant to the consideration of the tariff filing

The Company has proposed a similar framework for UNS Electric's service territory. If approved in both the TEP and UNS Electric service territories, the Company proposes to leverage findings from our sister utility to help inform these efforts. Aside from this, TEP has provided all the information it believes is necessary for consideration of the tariff filing for this program.

B. Beneficial Electrification

1. Description

In order to broaden TEP's efforts to support clean energy and improve air quality through the Company's DSM portfolio, TEP proposes to begin the promotion of beneficial electrification measures. To be defined as a beneficial electrification measure, a technology must provide at least three or more of the following benefits:

- It reduces a customer's total energy use.
- It reduces a customer's total energy costs.
- It improves air quality.
- It provides customer health and safety benefits.
- It provides benefits to the grid as a flexible distributed energy resource.

Beneficial electrification provides several important benefits to customers and to the electric system, including increased energy efficiency, customer financial savings, reduced dependence on fossil fuels, and-improved air quality, as well as providing multiple opportunities optimizing load and energy storage.

To deliver these benefits, TEP proposes to offer five new beneficial electrification measures to nonresidential customers through the C&I Comprehensive and New Construction Program. These measures include electric forklifts, standby truck electrification, belt loaders, tow tugs, and pushback tugs. The Company also proposes to add an induction cooking measure to the Residential New Construction Program. Similar beneficial electrification measures are currently being implemented by a number of utilities across the country, and the measures proposed within this plan align with those offered by SRP and those proposed by APS. These measures are described in more detail below.

- **New Measure for 2021: Electric Forklifts**

  Forklifts are used primarily for lifting and moving loads. They are most often found in facilities such as warehouses and shipping depots. Electric forklifts offer an emissions-free, healthier and quieter alternative to standard forklifts, which operate using diesel fuel or propane. Electric forklifts are much less expensive to operate and maintain, saving customers up to 75% on annual fuel costs, as well as requiring lower maintenance costs compared to forklifts with standard internal combustion engines ("ICE"). When used in indoor facilities, electric forklifts also result in additional energy savings by reducing the need for fresh air ventilation that is required when internal combustion engines are used indoors. Electric forklifts draw upon integrated battery systems that are sized for specific lifting capacities and duty cycles each day. These batteries provide energy storage opportunities that can benefit the grid. TEP proposes to pay an initial incentive of $1250 per unit for a qualifying new electric forklift or for converting and ICE forklift, with a maximum of $50,000 per customer meter. Baseline unit is equivalent functional internal combustion engine powered model.

- **New Measures for 2021: Standby Truck Refrigeration**.

Typical diesel trucks use their internal combustion engines to operate their cab HVAC and to maintain temperatures for refrigerated storage while they sit idling waiting to load and unload. As an alternative, electric standby truck refrigeration units offer the ability for trucks to use electricity to operate equipment in the truck cab and maintain temperatures in both the cab and in the trailer while loading and unloading cargo at a distribution center. Eliminating this truck engine idling time saves energy and reduces overall fuel costs, while also lowering emissions, and creating healthier, safer, and quieter workspaces. TEP proposes to pay an initial incentive of $750 per unit for a qualifying newly installed electrification station, with a maximum of $50,000 per customer meter. Baseline is an idling ICE truck engine

- **New Measures for 2021: Electric Ground Support Equipment**

  Ground support vehicles are designed for moving heavy objects such as planes, loading and unloading luggage or packages, and transporting baggage and packages. All three types of vehicles have typically relied upon gasoline powered internal combustion engines. Shifting these vehicles to an electric power supply creates the opportunity to save energy, reduce operating and maintenance expense, lower fuel costs, decrease emissions, and improve worker health and safety. TEP proposes to pay an initial per unit incentive of $1,100 per belt loader, $2,500 per tow tug, and $5,000 per push tug, with a maximum of $50,000 per customer meter. Baseline unit is equivalent functional internal combustion engine powered model.

- **New Measures for 2021: Induction Cooktops**

  Induction cooking is a highly energy efficient technology that uses magnetic currents to directly heat cookware, unlike most stoves that indirectly heat the cookware by first heating the electric cooktop surface. This efficiency means that induction cooktops can heat foods and liquids up to 50% faster than electric or gas cooktops. In addition to saving energy directly, the technology also offers significant indirect energy savings by reducing the amount of waste heat it adds into homes, requiring less fan run time for cooking area ventilation and lowering HVAC costs. Moreover, because the induction cooktops rely on a magnetic transfer for heating purposes, they are also safer than traditional heated cooktops because the cooking surface does not stay hot after cookware is removed. TEP proposes to leverage home developer contacts through the Residential New Construction Program to offer builders an incentive of $200 per induction cooktop to install this pilot measure in their new homes. Baseline is an all-electric, non-induction cooktop.

With the exception of induction cooking, customers who are replacing existing electric equipment with new electric equipment are not eligible to participate. Only customers who are replacing fossil fuel units, expanding a fleet, or buying their first piece of electric equipment are eligible to participate.

2. Modifications Proposed

None. This is a new offering.

3. Program objectives and rationale

The objectives of this effort are to improve air quality and achieve broader clean energy objectives by helping customers save energy and money by replacing fossil fuel powered equipment with quieter, emission-free electric equipment for improved health, safety, and productivity in the home and workplace, while lowering equipment operating and maintenance costs, and saving customers money. These measures also offer benefits to the energy grid from the energy storage and distributed flexible load resources they provide.

4. Targeted market segment

The measures will be made available to residential and non-residential customers in the TEP service territory. Electric forklifts will be targeted at large commercial and industrial customers, particularly shipping centers, warehouses, and other storage facilities. Truck electrification will also focus on food manufacturing and distribution, shipping centers and warehouses, as well as truck stops and travel centers. Airport ground transportation vehicles will be targeted at airports within TEP's service territory. Induction cooktops will be targeted to new homebuilders for inclusion in their new home offerings.

5. Estimated level of customer participation

The estimated level of customer participation for 2021 is shown in Appendix B, Table B-1. The corresponding data for the proposed measure is shown in Appendix A, Table A-1.

6. Estimate of the baseline

For electric forklifts, standby truck refrigeration, and airport ground equipment the baseline is equivalent equipment operating with internal combustion engines. The baseline for induction cooktops is an electric resistance cooktop. The estimated baseline for 2021 is shown in Appendix B, Table B-2. The corresponding data for the proposed measure is shown in Appendix A, Table A-2.

7. Estimated societal benefits and savings

This pilot effort will help to determine these values.

8. Estimated societal costs

This pilot effort will help to determine these values.

9. Estimated environmental benefits

This pilot effort will help to determine these values.

10. Estimated cost benefit ratio

This pilot effort will help to determine these values.

11. Marketing and delivery strategy

Marketing and outreach will work through key account manager relationships to reach out to dealers and offer to educate the dealers sales teams and provide them with promotional materials. The program will also reach directly to potential customer buyers in the above-mentioned target markets, by leveraging existing TEP engagement channels including the company website, email, and possible event sponsorship. Marketing materials may include an information packet, case studies, training materials and a customer savings calculator.

12. Estimated annual costs and budget

The estimated annual Program costs and budget for 2021 are shown in Table 3. The estimated annual budget and costs for the Program's proposed measures are shown in Appendix A, Table A-5.

13. Implementation schedule

TEP plans to implement new measures shortly after receiving the Commission's approval.

14. Description of MER plan

The MER plan is consistent with the strategy previously approved by the Commission.

15. Other information relevant to the consideration of the tariff filing

The company has proposed a similar framework for our UNS Electric service territory. If approved in both the TEP and UNS Electric service territories, the Company proposes to leverage findings from our sister utility to help inform these efforts. Aside from this, TEP has provided all the information it believes is necessary for consideration of the tariff filing for this program.

C. Innovative Customer Solutions Framework

1. Description

As Arizona's fast changing energy landscape transitions to a more decentralized grid, it is imperative that TEP is better able to quickly adjust and adapt on an ongoing basis. The changing landscape requires more extensive load management, more direct customer engagement, and input from a variety of stakeholders. It also requires the ability to nimbly address evolving customer needs, emerging technology solutions, and changing market conditions, as well as responding to new Commission objectives in a timely manner.

Because the speed of change is now evolving at a rate that outpaces typical filing timelines, TEP seeks to establish an ongoing innovative framework for exploring technology innovation and assessing customer value in a limited real-world testing environment that will enable to the Company to ascertain viability prior to seeking Commission approval for larger scale initiatives. This framework will allow TEP to conceive new, proof-of-concept initiatives, and rapidly test combinations of technologies, customer communication and education, financing, and data analysis to determine which provide the most value to customers. This framework will have predefined Commission-approved guidelines, such as limited time, participation, and cost parameters, that enable the Company to quickly propose and

launch these experiments outside of the traditional utility DSM Plan filing cycle, previously approved rate structures, program designs and evaluation methodologies.

2. Objectives

The new framework will address multiple objectives, including:

- Enabling a proactive review of emergent technologies that are or have the potential to affect our grid and our customer base;
- Providing a structure for testing and developing new offerings to assist customers who tend to be underserved by existing programs;
- Gathering feedback from customers about their motivations, drivers, preferences, and other elements of their experiences, including the value and benefits they receive from participating, and the likelihood to recommend to others and/or participate in the future;
- Obtaining valuable insights into customer use cases and the benefits associated with the technologies, rates, and other attributes of the initiative under investigation;
- Gaining knowledge and understanding of how to safely and more effectively connect, communicate and dispatch distributed energy technologies with high levels of reliability;
- Facilitating the ability to rapidly perform controlled experiments and evaluations outside of the more time-consuming process of a typical DSM filing cycle ;
- Lowering risk by conducting appropriate due diligence for proposed programs/products/services, under controlled conditions, prior to rollout to a larger cohort.

By meeting these objectives, the framework will provide significant benefit to all ratepayers since it enables TEP to better refine and identify products, programs, and services that benefit a wider majority of our customers.

3. Example Initiatives

TEP proposes to accomplish these objectives through applied research and small-scale pilots. Such efforts would have differing research designs and would likely target differing customer demographics, psychographics, and regions of our territory depending on the combination of experimental parameters under evaluation. Such combinations could include but would not be limited to technology assessments and comparisons; small, targeted customer engagement program studies; new service offerings at the commercial level; and/or recombining previously defined measures and rates into new offerings. Example initiatives may include:

- Providing free or low-cost technologies, such as smart thermostats that are preprogrammed with TEP's current TOU rates or grid connected water heaters, to customers who might not ordinarily purchase them in order to better determine how TEP can remotely manage the devices to help customers reduce their peak demand and lower their bills.
- Packaging smart home technologies, such as lighting, thermostats, with voice activated devices to better enable mobility-challenged customers to manage the energy use and demand of their homes and businesses.

These experimental initiatives will adhere to Commission policy goals for demand side management programs and Commission guidance for past programs, including: reducing customer energy costs, lowering emissions, engaging with low to moderate income demographics, decreasing carbon footprint, supporting clean energy, and helping to defer the need for new generation capacity.

4. Timeframe

TEP intends this to be an ongoing endeavor with the efficacy of the overall framework to be evaluated on a periodic basis. Within this framework, individual experiments and initiatives may be of varying duration depending on the parameters to be explored. Individual initiatives will generally run for 12 to 24 months in order to collect data across all seasons and allow time to collect participant feedback and analyze results. No initiatives within this framework will extend longer than 36 months without Commission approval to continue.

5. Participation

In order to provide representative results when scaled, the number of customers participating in individual initiatives may vary. However, TEP proposes that the cumulative number of participating customers in all ongoing initiatives for the first year will be no more than 1% of residential and nonresidential customers. TEP seeks to retain the option to reassess and request differing engagement levels if warranted in the future.

6. Criteria

All proposed initiatives will meet the following criteria:

1. Addresses a problem or brings benefits to TEP customers and/or the energy grid;
2. Has a limited and defined set of customers (where applicable);
3. Has clear objectives and success criteria;
4. Has defined test parameters and scenarios;
5. Has a defined endpoint and timeline;
6. Has a defined measurement and evaluation plan;
7. Has a well-defined risk assessment and mitigation strategy;
8. Has defined terms and conditions to help ensure optimal outcomes for participants, TEP, and, ultimately, ratepayers.

7. Review Process

In addition to ensuring that any proposed initiatives comply with the above stated criteria, each new innovative initiative that TEP intends to propose will be approved by an internal TEP review board composed of functional departments that can best advise the group in program development and experimental design. Periodically an external stakeholder advisory board will be convened to further review and provide feedback on any proposed initiatives that have first passed the internal TEP review process.

8. Filing on Individual Initiatives

Upon review of each individual initiative by the appropriate groups, the Company will file 60 days advance notice with the Commission before proceeding with implementation. The advance notice will describe the initiative, business case, and targeted demographic, as well as indicate adherence to the eight criteria noted above. The advance notice will also list the parties engaged in the vetting process. As appropriate, the notice will include relevant information such as proposed participation, customer eligibility and selection process, measures, terms and conditions, expected costs, device control strategies, and other key elements to be explored. This timeframe will allow for sufficient comment, review and oversight while enabling TEP to move forward with the nimble agility discussed above.

Within the notice for each new initiative, TEP will also include a data collection and reporting plan that provides a description of the MER design to be used to collect customer feedback and satisfaction, assess customer behaviors, and determine how the pilot effort is meeting customer needs. Moreover, in order to facilitate an accurate assessment of the benefits and costs for each effort, TEP will label each individual initiative with a unique identifier to ensure that all of its associated tasks, activities, metrics, and expenses are tracked accordingly.

9. Tracking and Reporting

For each initiative, TEP will provide two updates per year, including one within TEP's Annual DSM Progress Report filed on March 1st of each year and an update in the DSM Semi-Annual Progress Report, filed on September 1st of each year. As applicable to the parameters of each initiative and to the typical reporting conventions of each filing document, these semi-annual reports will address current levels of customer participation, costs, energy and demand impacts, technology performance, and, if applicable, rate or customer financial impacts.

Final initiative reporting after the end of the completed testing timeframe, will include MER evaluation findings, customer experience insights, potential for scaling, and other research results associated with the individual initiative design. All of this information will be used as TEP determines whether the individual initiative should be advanced to a full program offering. It is important to note that not all of the experimental initiatives that are tested will move forward to a full program offering, and that some initiatives may not initially be deemed cost effective but may prove to be so at scale.

10. Amendments to Terms and Conditions of Innovative Pilots

TEP will file 30 days advance notice with the Commission of any significant changes in customer participation requirements, pricing, terms, or other conditions.

11. Proposed Budget

To best prepare for engagement of a wider customer base and greater participation levels, TEP proposes that up to 7% of annual DSM spending could be allocated to this proposed experimentation framework. TEP believes this will enable the Company to have the flexibility to better leverage future DSM dollars collected by proactively identifying products, services, and programs that provide the most overall value to our customer base.

12. Alignment with UNS Electric

The Company has proposed a similar framework for our UNS Electric service territory. If approved in both the TEP and UNS Electric service territories, the Company proposes to leverage findings from our sister utility to help inform these efforts.

IV. DSM Programs and Measures (R14-2-2407)

Residential Programs

This short introductory section includes requested modifications applicable to all TEP's residential programs.

1. Modifications Proposed

For currently approved measures, TEP offers incentives of up to 50% of incremental cost using the min/max incentive model applied to the weighted average, as approved in Decision 77085. TEP proposes to adjust the range of incentive levels to up to 75% of incremental cost using the min/max incentive model applied to the weighted average, as shown in Appendix B, Table B-6. This will give TEP the flexibility to adjust incentives up or down based on market conditions and savings goals.

For budgetary purposes, contractor remuneration for installation is now classified under program incentive costs (similar to the way that other Arizona utilities are currently classifying these costs) because this more accurately reflects the reduction in costs that would otherwise be required to deliver energy efficiency services that benefit TEP customers. These incentives reduce the contractors' administrative burden associated with the program and help program trade allies deliver services competitively as compared to other contractors who do not participate, which provides direct benefits to TEP customers who receive these services.

In order to provide the greatest savings opportunities for program participants, TEP seeks to bundle multiple energy savings measures at the same time when they make sense for customers. To do this most effectively, TEP assumes that a measure that is approved for one DSM program may be offered in any other DSM program in accordance with Decision 77085.

D. Efficient Products Program (Existing Program)

13. Description of Program

The Efficient Products program is an existing program that has been in place since 2008 and was most recently approved by the Commission in Decision 77085. The Program drives energy and demand savings through retail promotions and partnerships that support the purchase and installation of energy efficient and load management products by eligible customers in TEP service territory.

For existing measures, TEP offers incentives of up to 50% of incremental cost using the min/max incentive model applied to the weighted average, as approved in Decision 77085. Refer to Appendix B, Table B-6 to see the recommended incentive for each measure.

14. Modifications Proposed

TEP intends to suspend the Advanced Power Strips measure because it is not cost effective at this time. TEP will monitor and screen this measure in future DSM Plans to see if it can be brought back to cost

effectiveness due to changes in TEP avoided costs, measure savings profiles or reduced technology costs.

TEP proposes to modify the existing maximum monthly incentive cap of $3,500 per retailer for rebates for new energy efficient appliances to a maximum of up to $5,000 per retailer.

TEP intends to implement a customer education component to the program to increase emphasis on the load shifting capabilities of pool pumps. The program will educate pool owners and pool service providers about the benefits of changing to a time of use and/or demand based rate that will save them money when they adjust their pool pumping periods to occur during off peak hours, including pumping their pool during midday off-peak hours to help utilize excess solar generation.

15. Program objectives and rationale

There are no proposed modifications to the Program's objectives and rationale. The Program offers customers opportunities to reduce and shift their energy consumption by purchasing energy efficient retail products, and furthers the transformation of the market by leveraging retail partnerships, training retail staff, and working with retailers to increase the stocking and selection of efficient products.

The objectives of the Program are to:

- Manage load, reduce peak demand and lower overall energy consumption in homes and small businesses;
- Increase the purchase of Energy Star® products;
- Increase the availability of Energy Star® products in the marketplace; and
- Increase the awareness and knowledge of retailers and TEP customers about the benefits of Energy Star® products.

16. Targeted market segment

There are no proposed modifications to the targeted market segment. The Program is available to residential and small commercial customers in the TEP service territory.

16. Estimated level of customer participation

The estimated level of customer participation for 2021 is shown in Appendix B, Table B-1.

17. Estimate of the baseline

The estimated baseline for 2021 is shown in Appendix B, Table B-2. The corresponding data for the proposed measure is shown in Appendix A, Table A-2.

18. Estimated societal benefits and savings

The estimated societal benefits and savings for 2021 are shown in Appendix B, Table B-3 in. The corresponding data for the proposed measure is shown in Appendix A, Table A-3.

19. Estimated societal costs

The estimated societal costs for 2021 are shown in Appendix B, Table B-3. The corresponding data for the proposed measure is shown in Appendix A, Table A-3.

20. Estimated environmental benefits

The estimated environmental benefits for 2021 are shown in Appendix B, Table B-4. The corresponding data for the proposed measure is shown in Appendix A, Table A-4.

21. Estimated cost benefit ratio

The estimated benefit-cost ratio for 2021 is shown in Appendix B, Table B-3. The corresponding data for the proposed measure is shown in Appendix A, Table A-3.

22. Marketing and delivery strategy

The Program is primarily marketed through mass-market channels (e.g., radio, newspaper, website, social media, etc.), or through educational and training partnerships with participating retailers.

TEP will add new education and marketing tools to the pool pump program element that will increase emphasis on load shifting by educating pool owners and service providers about the bill savings benefits of adopting a time of use rate and adjusting pool pumping periods to occur during off peak hours, especially during midday times of maximum solar production.

23. Estimated annual costs and budget

The estimated annual Program costs and budget for 2021 are shown in Table 3. The estimated annual budget and costs for the Program's existing measures are shown in Appendix B, Table B-5. The corresponding data for the proposed measure is shown in Appendix A, Table A-5.

24. Implementation schedule

TEP plans to implement any proposed changes to the program after receiving the Commission's approval.

25. Description of MER plan

The MER plan is consistent with the strategy previously approved by the Commission.

26. Other information relevant to the consideration of the tariff filing

TEP has provided all the information it believes is necessary for consideration of the tariff filing for this program.

E. Electric Vehicles (Discontinued)

1. Description of program

TEP's Electric Vehicle Pilot program was proposed in the Company's 2018 DSM Plan and approved by the Commission in Decision 77085 (February 20, 2019). As originally approved, the Electric Vehicle Pilot program was designed to enable TEP to retrofit existing homes and to work with participating homebuilders so that pre-wired EV homes are marketed to individuals or communities with the highest likelihood of EV ownership. It also focused on associated infrastructure and charging stations at schools, universities, multifamily dwellings, workplaces, and commercial vehicle fleet centers.

2. Modifications Proposed

As directed by the Commission in Decision 77289 (July 19, 2019), TEP has shifted its previously approved budget for its electric vehicle efforts out of the EV program and into other DSM programs. The Company intends to continue its electric vehicle efforts outside of its DSM Implementation Plan, as described in the Company's Electric Vehicle Policy Implementation Plan, Docket No. RU-00000A-18-0284 (September 16, 2019).

3. Program objectives and rationale

Not applicable.

4. Targeted market segment

Not applicable.

5. Estimated level of customer participation

Not applicable.

6. Estimate of the baseline

Not applicable.

7. Estimated societal benefits and savings

Not applicable.

8. Estimated societal costs

Not applicable.

9. Estimated environmental benefits

Not applicable.

10. Estimated benefit-cost ratio

Not applicable.

11. Marketing and delivery strategy

Not applicable.

12. Estimated annual costs and budget

Not applicable.

13. Implementation schedule

Not applicable.

14. Description of MER plan

Not applicable.

15. Other information relevant to the consideration of the tariff filing

Not applicable.

F. Existing Homes (Existing Program)

1. Description of Program

The Existing Homes program has been in place since 2008 and was most recently approved by the Commission in Decision 77085.

The Program, now marketed as the "Efficient Home Program," is designed to encourage homeowners to increase the energy efficiency of their homes. The Program provides incentives for high-efficiency HVAC equipment and tune-ups, duct sealing and smart thermostats to reduce annual energy consumption, enable load shifting, and lower peak demand.

For existing measures, TEP offers incentives of up to 50% of incremental cost using the min/max incentive model applied to the weighted average. This approach is in response to market trends. Refer to Appendix B, Table B-6 to see the recommended incentive for each measure.

2. Modifications Proposed

In 2021, all smart thermostats rebated through the Existing Homes program will be DR-enabled and customers will be encouraged to participate in TEP's smart thermostat demand response program to be offered as an element of the Load Management pilot. TEP proposes to claim and verify year-round energy and peak demand savings from smart thermostats under the Existing Homes program, as well as the event-day demand response capacity savings from these smart thermostats under the Load Management Pilot program. As a result, in order to align benefits and costs, TEP is allocating a portion

of the EE smart thermostat incremental cost to Existing Homes and the remainder to the Load Management Pilot program.

TEP intends to suspend the Energy Star® heat pump water heater measure because it is not cost effective at this time. TEP will monitor and screen this measure in future DSM Plans to see if it can be brought back to cost effectiveness due to changes in TEP avoided costs, measure savings profiles or reduced technology costs.

The company also proposes to offer the following new measure.

- **New Measure for 2021: Custom Residential HVAC**

  In 2021, TEP will introduce a custom residential HVAC measure to the Existing Homes Program. This measure will consider specific residential applications of new space cooling and heating technologies and identify cost-effective settings in which HVAC technologies can be deployed. Custom projects may include measures such as ductless mini splits, variable refrigerant flow, and other emerging air conditioning technologies that provide cost effective energy savings. Each proposed custom HVAC technology application will need to provide detailed energy simulation modeling of savings that TEP will use to verify cost-effectiveness to be eligible for a rebate. In order to manage program implementation costs, TEP reserves the ability to review projects on a case-by-case basis, and to reject projects that the Company determines will not meet program cost effectiveness guidelines or other program requirements. TEP will work with participating trade allies and customers who apply for a custom residential HVAC incentive to determine if the HVAC technology can be replicated to offer cost effective savings at scale, and TEP administrative time in reviewing projects will be prioritized based on this criteria.

  Incentives will be paid for qualifying projects based on estimated annual energy savings, with a TEP incentive of up to $5000, using the min/max model of up to 75% of the total project incremental cost. In the case of an HVAC unit that is replacing an existing HVAC unit that has burned out ('replace on burnout') and for new HVAC units that are being added to an existing home renovation project, the baseline unit against which savings will be measured is a new replacement HVAC system that meets current codes and standards (e.g. currently a 14 SEER unit). In the case of an HVAC unit that is replacing an existing HVAC unit that is still functioning, a blended baseline will apply based on the age of the existing HVAC unit and estimated equipment life remaining. The blended baseline will be calculated using the same Commission approved method that is used in other HVAC early replacement measures.

The proposed measure and associated metrics are shown in Appendix A.TEP requests that the eligibility criteria be modified to allow this Program to be directly available to residential customers living in master-metered mobile home parks. Expanding eligibility in this way will give the Company the option to send rebates directly to the customer residing at the address where the measure is provided rather than being required to send all master-metered tenant rebates to a single master meter account owner. Additionally, this approach will assist in reaching low-to-moderate income customers.

3. Program objectives and rationale

There are no proposed changes to the objectives and rationale for the Program. The objectives of the Existing Homes program are to achieve energy and demand savings in the residential sector, including:

- Properly size and provide quality installation of high efficiency HVAC equipment, tune-up existing equipment, seal leaky ductwork, and install smart thermostats.
- Cultivate customer interest in, and a qualified contractor base for, comprehensive DSM retrofits in alignment with the "Home Performance with Energy Star®" program.

4. Targeted market segment

TEP is requesting the following modifications to the program. TEP requests that the eligibility criteria be modified to allow this Program to be directly available to residential customers living in master-metered mobile home parks. Expanding eligibility in this way will give the Company the option to send rebates directly to the customer residing at the address where the measure is provided rather than being required to send all master-metered tenant rebates to a single master meter account owner. Additionally, this approach will assist in reaching low-to-moderate income customers.

5. Estimated level of customer participation

The estimated level of customer participation for 2021 is shown in Appendix B, Table B-1. The corresponding data for proposed measures is shown in Appendix A, Table A-1.

6. Estimate of the baseline

The estimated baseline for 2021 is shown in Appendix B, Table B-2. The corresponding data for proposed measures is shown in Appendix A, Table A-2.

7. Estimated societal benefits and savings

The estimated societal benefits and savings for 2021 are shown in Appendix B, Table B-3. The corresponding data for proposed measures is shown in Appendix A, Table A-3.

8. Estimated societal costs

The estimated societal costs for 2021 are shown in Appendix B, Table B-3. The corresponding data for proposed measures is shown in Appendix A, Table A-3.

9. Estimated environmental benefits

The estimated environmental benefits for 2021 are shown in Appendix B, Table B-4. The corresponding data for proposed measures is shown in Appendix A, Table A-4.

10. Estimated benefit-cost ratio

The estimated benefit-cost ratio for 2021 is shown in Appendix B, Table B-3. The corresponding data for proposed measures is shown in Appendix A, Table A-3.

11. Marketing and delivery strategy

TEP provides program management, oversight, and marketing. All existing measures except smart thermostats are provided by a third-party IC that is responsible for: i) recruitment, training, and mentorship of participating contractors; ii) data tracking; iii) rebate processing; and iv) technical support. TEP will work with the third-party implementation contractor ("IC") to promote and deliver the new custom HVAC measure. TEP intends to invite new and existing customers who already own a smart thermostat(s) to participate in the Residential Load Management Pilot Program.

In accordance with Decision No. 75297 (October 27, 2015), TEP intends to promote rate optimized smart thermostats and other load control measures that are included in the Residential Load Management Pilot Program along with the other measures provided by this program. Participation will be solicited mainly through traditional and digital means, including e-notifications and email. Offers may also be marketed as part of the TEP online marketplace, discussed under Consumer Education and Outreach below. For customers who prefer contractor installation, TEP will offer reduced installation costs through participating trade allies where available and applicable.

TEP intends to deliver the proposed custom HVAC measure with assistance from a third party IC, and primarily market the custom measure to HVAC industry trade allies in conjunction with other HVAC program opportunities.

12. Estimated annual costs and budget

The estimated annual Program costs and budget for 2021 are shown in Table 3. The estimated annual budget and costs for the Program's existing measures are shown in Appendix B, Table B-5. The corresponding data for proposed measures is shown in Appendix A, Table A-5.

13. Implementation schedule

TEP plans to implement any proposed changes to the program after receiving the Commission's approval.

14. Description of MER plan

The MER plan is consistent with the strategy previously approved by the Commission.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all the information it believes is necessary for consideration of the tariff filing for this program.

G. Low-Income Weatherization (Existing Program)

1. Description of program

The Low-Income Weatherization ("LIW") program is an existing program and was most recently approved by the Commission in Decision 77085. This program is designed to reduce electric bills for

eligible customers and improve their comfort and quality of life by installing weatherization measures and other technologies that promote energy and demand savings. Per home expenditures are capped at $6,000. The savings realized through the program allow low-income customers to better use their limited income for other things such as health and safety. In Decision 77085, the Commission authorized TEP to utilize additional agencies to those currently approved to assist in the delivery of the LIW Program.

2. Modifications Proposed

TEP proposes to maintain the previously approved Weatherization Assistance Program ("WAP") measure list, as shown in Appendix C.

3. Program objectives and rationale

There are no changes to the Program's objectives and rationale. The objectives of the Program are to:

- Increase the number of homes weatherized each year;
- Reduce participating low-income customers' average household utility bills by utilizing energy conservation measures as defined in the rules maintained by the Weatherization Assistance Program as shown in Appendix C, a program funded by the United States Department of Energy ("DOE");
- Improve the quality of life for customers by providing them with a safer, healthier, more efficient home.

4. Targeted market segment

There are no changes to the Program's targeted market segment. The Program is available to low-income residential customers in the TEP service territory at or below 200 percent of the Federal Poverty Level. The program aids in funding resident homeowners and renters (with landlord approval) for single-family homes, multi-family homes (townhomes, duplexes, apartment complexes) and mobile homes or trailers, as long as it is a primary residence in Arizona.

5. Estimated level of customer participation

The estimated level of customer participation for 2021 is shown in Appendix B, Table B-1.

6. Estimate of the baseline

The estimated baseline for 2021 is shown in Appendix B, Table B-2.

7. Estimated societal benefits and savings

The estimated societal benefits and savings for 2021 are shown in Appendix B, Table B-3.

8. Estimated societal costs

The estimated societal costs for 2021 are shown in Appendix B, Table B-3.

9. Estimated environmental benefits

The estimated environmental benefits for 2021 are shown in Appendix B, Table B-4.

10. Estimated benefit-cost ratio

The estimated benefit-cost ratio for 2021 is shown in Appendix B, Table B-3.

11. Marketing and delivery strategy

TEP intends to utilize various measures laid out in the WAP Rules, as shown in Appendix C. For measures that require direct installation, TEP may perform a pre- and post-inspection of the units to ensure proper installation.

The weatherization component is delivered by community action agencies approved by the Arizona Department of Housing ("ADOH"). These agencies provide program administration, planning, promotion, verification of participant eligibility, labor, materials, equipment and tracking software. Funding is provided to relevant agencies by TEP upon documentation of work completed. Weatherization measures fall into four major categories: i) duct repair; ii) pressure management/infiltration control; iii) attic insulation; and iv) repair or replacement of non-functional or hazardous appliances. Weatherization is conducted in accordance with WAP Rules.

12. Estimated annual costs and budget

The estimated annual Program costs and budget for 2021 are shown in Table 3.

13. Implementation schedule

TEP plans to implement any proposed changes to the program after receiving the Commission's approval.

14. Description of the plan for MER

Prior to 2016, TEP used the LIW savings numbers published on an annual basis by the Governor's Office and the ADOH to assign deemed savings values to homes weatherized through the LIW program. These numbers were not specific to TEP territory however, and the source of these savings values was not transparent. In 2016, Navigant conducted an analysis of actual REM/Design program files from participating homes in the TEP and UNS Electric service areas which underwent weatherization during 2015. Based on this analysis, Navigant provided TEP with updated and more accurate savings values specific to the TEP and UNS Electric's programs. TEP used these research-based savings values for claiming program savings staring in 2016 and continues to do so.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all the information it believes is necessary for consideration of the tariff filing for this program.

H. Multi-Family (Existing Program)

1. Description of program

The Multi-Family program is an existing program and was most recently approved by the Commission in Decision 77085.

The Program is designed to encourage property managers and customers living in multi-family housing to install devices that provide energy and demand savings, and to work with property managers to improve the overall efficiency of multi-family properties. The Program is available to multi-family properties with buildings consisting of five (5) or more connecting residential units. Qualifying properties could include rentals and/or owner-occupied properties.

The Program encourages multi-family properties to install more efficient lighting, smart thermostats, and low-flow water devices. The Program also offers HVAC tune-up measures, Western Cooling Controls, and Duct Testing and Repair. Additionally, multi-family facility managers are encouraged to participate in the C&I Facilities program, which promotes DSM measure installation in common areas.

For existing measures, TEP offers incentives of up to 50% of incremental cost using the min/max incentive model applied to the weighted average. This approach is in response to market trends. Refer to Appendix B, Table B-6 to see the recommended incentive for each measure.

2. Modifications Proposed

Due to lower utility avoided costs, the following measures are projected to be less than cost-effective in the Multi-Family program in 2021: advanced tune ups with a benefit to cost ratio of 0.95, EE smart thermostats with a benefit to cost ratio of 0.91, and early retirement HVAC with quality install with a benefit to cost ratio of 0.94. However, TEP proposes to continue offering these measures in 2021 while we simultaneously work to improve cost effectiveness for this program. These measures are cost-effective in other 2021 TEP programs, and because HVAC represents one of the largest contributors to household energy use and demand, TEP seeks to continue offering these measures to provide benefits for TEP customers who live in multi-family dwellings while the Company files its subsequent DSM Plan in 2022. This will enable us to continue helping these customers save energy and reduce their energy costs, while we seek to modify implementation costs to improve cost effectiveness in the 2022 DSM Plan.

TEP proposes to add a residential custom measure to the Multi-Family program in order to take advantage of additional savings opportunities in multi-family buildings from comprehensive retrofit projects that offer increased program savings at a lower cost to improve the overall program cost effectiveness.

- **New Measure for 2021: Multi-Family Custom Comprehensive Whole Property** TEP proposes to offer a new comprehensive whole building custom measure for multifamily properties. Unlike our currently approved individual measures, such as lighting, HVAC, or duct testing and repair that are eligible for rebates based on the incremental cost of the individual measure, this custom comprehensive measure will cover the bundling of previously approved

EE measures with other efficiency improvements into a single energy saving combination to be paid on a per kWh basis. In a manner similar to the method used to deliver the package of weatherization measures for low-income customers, this new measure will enable an implementation contractor to install as many measures as appropriate to the individual structures. In other words, by treating whole property energy savings as a comprehensive package, this approach affords the opportunity for deeper retrofits that capture more savings by encouraging the early retirement of less efficient, but functioning equipment, as well as by enabling upgrades to building insulation, ductwork and other measures that may otherwise be missed when each upgrade is considered on its own.

TEP proposes to pay this custom measure using the min/max model with an incentive range capped at an incentive up to 75% of incremental project costs in order give TEP the flexibility to adjust incentives up or down based on market conditions and savings goals. For qualifying multi-family projects that serve limited to moderate income customers, TEP proposes to offer the maximum incentive level within the min/max range in order to best target DSM program funds to provide the maximum benefits for limited income customers. In order to qualify for custom whole building incentives, projects must be submitted with detailed energy simulation modeling showing estimated annual savings. TEP will work with the program implementation contractor to ensure that projects are cost effective before custom incentives are approved for payment. Project savings will be compared against baselines that will vary according to the mix of measures included in the project. The baseline for each measure will be calculated based on current local building codes and/or market practices.

The proposed measure and associated metrics are shown in Appendix A.

In order to begin targeting more multifamily properties that serve the limited to moderate income market, TEP also requests that the eligibility criteria be modified to allow this Program to be directly available to residential customers living in master-metered multi-family dwellings. This is discussed in more detail under Targeted market segment below.

3. Program objectives and rationale

There are no changes to the Program's objectives or rationale. The potential for energy efficiency improvements in the multi-family housing market remains largely under-realized. Because of various market barriers, such as split incentives, capital constraints and lack of awareness, DSM improvements are typically a low priority. Through the direct installation and renovation/ rehabilitation implementation framework, this Program addresses these issues and offers substantial energy savings.

The objectives of the Program are to:

- Reduce peak demand and overall energy consumption in the multi-family housing market;
- Promote energy efficiency retrofits for both dwelling units and common areas (through the C&I Program and the new Custom Whole Building retrofit measure); and
- Increase overall awareness of the importance and benefits of DSM improvements to the landlord, tenants, and property ownership community.

4. Targeted market segment

The Program is available to multi-family properties with buildings consisting of five (5) or more connecting residential units. Qualifying properties can include rentals and/or individually owned properties.

While this program will continue to be available to all qualifying properties, TEP plans to begin targeting more multifamily properties that serve the limited to moderate income market. While low income customers are categorized as those with incomes of less than 200% of the federal poverty level, TEP considers limited to moderate income customers to be those that are between 200% of federal poverty level and 80% of the national adjusted median income. TEP believes that this segment of multifamily customers can be difficult to serve since it falls outside the federal program guidelines, and the newly proposed custom comprehensive whole building measure creates a more effective means of supporting the installation of energy and demand savings measures in buildings occupied by these customers.

TEP also requests that the eligibility criteria be modified to allow this Program to be directly available to residential customers living in master-metered multi-family dwellings.

5. Estimated level of customer participation

The estimated level of customer participation for 2021 is shown in Appendix B, Table B-1. The corresponding data for proposed measures is shown in Appendix A, Table A-1.

6. Estimate of the baseline

The estimated baseline for 2021 is shown in Appendix B, Table B-2. The corresponding data for proposed measures is shown in Appendix A, Table A-2.

7. Estimated societal benefits and savings

The estimated societal benefits and savings for 2021 are shown in Appendix B, Table B-3. The corresponding data for proposed measures is shown in Appendix A, Table A-3.

8. Estimated societal costs

The estimated societal costs for 2021 are shown in Appendix B, Table B-3. The corresponding data for proposed measures is shown in Appendix A, Table A-3.

9. Estimated environmental benefits

The estimated environmental benefits for 2021 are shown in Appendix B, Table B-4. The corresponding data for the proposed measure is shown in Appendix A, Table A-4.

10. Estimated benefit-cost ratio

The estimated benefit-cost ratio for 2021 is shown in Appendix B, Table B-3. The corresponding data for proposed measures is shown in Appendix A, Table A-3.

11. Marketing and delivery strategy

Marketing and communications strategies for this program may include notifying property managers and owners through updates to the website, training seminars, call center on-hold messages, direct mail promotion, outreach to rental housing industry associations, and working with contractors and industry specialists. Primary emphasis is placed on low-income, subsidized housing complexes and on larger, older, and less efficient complexes. Program delivery is provided by either TEP staff and/or an IC.

While these marketing and implementation approaches will continue to apply, for the newly proposed custom comprehensive whole property upgrade measure, TEP will encourage the respective IC to overcome market barriers such as split incentives, capital constraints and lack of awareness by providing multifamily property owners with project bundles that package utility incentives with other potential funding sources like tax credits and grants, as well as by providing access to low cost financing options that are available in the market.

12. Estimated annual costs and budget

The estimated annual Program costs and budget for 2021 are shown in Table 3. The estimated annual budget and costs for the Program's existing measures are shown in Appendix B, Table B-5. The corresponding data for proposed measures is shown in Appendix A, Table A-5.

13. Implementation schedule

TEP plans to implement any proposed changes to the program after receiving the Commission's approval.

14. Description of the plan for MER

The MER plan is consistent with the strategy previously approved by the Commission.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all the information it believes is necessary for consideration of the tariff filing for this program.

I. Residential New Construction (Existing Program)

1. Description of program

The Residential New Construction program, marketed as the "Energy Smart Homes" Program, is an existing program most recently approved by the Commission in Decision 77085.

The Program provides a monetary incentive, to homebuilders to install EE and load management measures that help achieve a Home Energy Rating System ("HERS") Index score of 65 or lower for a

newly constructed home, as determined by the Energy Star® Certified Homes program requirements or equivalent.

2. Modifications Proposed

TEP plans to continue offering new home builders an incentive for Energy Smart Homes, along with prescriptive incentives for the following new load management measures that will proactively deliver better load shapes by installing them at the time of construction.

- **Connected EE Smart Thermostats** – This energy management technology facilitates energy efficiency savings and load shifting through both programmed settings and via utility signals for demand response. The units were recently approved for use in TEP's 2018 Residential Load Management Pilot program in Decision 77085. All participating homes in this program must install at least one of these devices. TEP will offer a builder incentive of up to 75% of the incremental cost per qualifying smart thermostat using the min/max incentive model applied to the weighted average. The measure and associated metrics are shown in Appendix A.

- **New Measure for 2021: Connected Electric Water Heaters Pilot Measure** – In order to site a large number of load management devices in a concentrated area, TEP proposes to add a new connected electric water heating pilot measure that provides incentives for homebuilders to install connected electric water heaters in new homes that offer the capabilities for energy savings, load shifting, and participation in utility demand response programs. Qualifying water heaters must have the capability for remote monitoring and control through Wi-Fi communication, or equivalent. These devices enable homebuyers to save money by shifting their energy use to off-peak periods. The required remote monitoring and control capability also helps ensure that homes equipped with these devices will be able to participate in future TEP programs for load shifting and demand response.

  TEP proposes to offer a builder incentive of up to 75% of the incremental cost per water heater, using the min/max incentive model applied to the weighted average based on the total incremental cost of the added bidirectional communications capability in the water heater and additional builder installation and administrative costs.

  These measures and their associated metrics are shown in Appendix A.

- **New Prescriptive Compliance Path for Multi-Family New Construction Projects**

  In order to expand participation in the Multi-Family element of the program to include projects that do not want to do the detailed energy modeling simulations needed to achieve the program's HERS rating requirements using a performance path approach, TEP intends to modify the program to include a prescriptive path to achieve the program's requirements. Multi-Family builders who opt to participate using the prescriptive path must meet each individual prescriptive specification in order to earn an incentive. The prescriptive path has been designed to achieve equivalent energy savings that would result from a project that opted to participate in the performance path and achieve at HERS rating of 65 or lower.

Details of the 2021 Multifamily New Construction builder option menu of prescriptive requirements are shown in Appendix D.

With the addition of these measures, TEP is requesting to modify the incentives for new single family and multi-family homes from a single overall Energy Smart Home incentive of $300/home to the following representative list of incentives:

- Energy Smart Home: $200/dwelling unit (using either Performance or Prescriptive Path)
- Connected smart thermostats: up to 75% of the incremental cost per thermostat, using the min/max incentive model applied to the weighted average
- Connected electric resistance or heat pump water heaters: up to 75% of the incremental cost per water heater, using the min/max incentive model applied to the weighted average

All measure incentives will be applied using the proposed min/max incentive model shown in Appendix B, Table B-6; including the potential to provide higher incentives within the min/max incentive range for dwellings that achieve lower HERS scores in order to drive additional cost effective program savings.

3. Program objectives and rationale

There are no proposed modifications to the Program's objectives and rationale. The objectives of the Program are to promote energy and demand savings through more efficient building practices. This is accomplished through builder training, customer awareness, and the promotion of energy efficient homes to consumers.

4. Targeted market segment

Builders of newly-constructed single-family and multi-family homes in the TEP service territory are currently eligible to participate in the program. There are no proposed modifications to the Program's eligibility criteria.

While this program will continue to be available to all qualifying properties, TEP plans to begin targeting more multifamily properties that serve the limited to moderate income market. While low income customers are categorized as those with incomes of less than 200% of the federal poverty level, TEP considers limited to moderate income customers to be those that are between 200% of federal poverty level and 80% of the national adjusted median income. TEP believes that this segment of multifamily customers can be difficult to serve since it falls outside the federal program guidelines, and the newly proposed custom comprehensive whole building measure creates a more effective means of supporting the installation of energy and demand savings measures in buildings occupied by these customers.

5. Estimated level of customer participation

The estimated level of customer participation for 2021 is shown in Appendix B, Table B-1. The corresponding data for proposed measures is shown in Appendix A, Table A-1.

6. Estimate of the baseline

The estimated baseline for 2021 is shown in Appendix B, Table B-2. The corresponding data for proposed measures is shown in Appendix A, Table A-2.

7. Estimated societal benefits and savings

The estimated societal benefits and savings for 2021 are shown in Appendix B, Table B-3. The corresponding data for proposed measures is shown in Appendix A, Table A-3.

8. Estimated societal costs

The estimated societal costs for 2021 are shown in Appendix B, Table B-3. The corresponding data for proposed measures is shown in Appendix A, Table A-3.

9. Estimated environmental benefits

The estimated environmental benefits for 2021 are shown in Appendix B, Table B-4. The corresponding data for proposed measures is shown in Appendix A, Table A-4.

10. Estimated benefit-cost ratio

The estimated benefit-cost ratio for 2021 is shown in Appendix B, Table B-3. The corresponding data for proposed measures is shown in Appendix A, Table A-3.

11. Marketing and delivery strategy

In order to support the addition of the above requested new measures, TEP intends to enhance the Program's marketing and delivery strategy. In addition to marketing the program to select builders primarily through direct business-to-business contacts and through direct engagement with multi-family apartment owners and managers, TEP will also work with the appropriate water heater manufacturers and distributors to promote the new water heating measure to builders.

The program continues to be delivered by TEP staff. Home inspections are conducted by third-parties certified by the Residential Energy Services Network ("RESNET"), who are selected by each builder.

12. Estimated annual costs and budget

The estimated annual Program costs and budget for 2021 are shown in Table 3. The estimated annual budget and costs for the Program's existing measures are shown in Appendix B, Table B-5. The corresponding data for proposed measures is shown in Appendix A, Table A-5.

13. Implementation schedule

TEP plans to implement any proposed changes to the program after receiving the Commission's approval.

14. Description of the plan for MER

The MER plan is consistent with the strategy previously approved by the Commission.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all the information it believes is necessary for consideration of the tariff filing for this program.

J. Shade Tree (Existing Program)

1. Description of program

The Shade Tree Program is an existing program that was most recently approved by the Commission in Decision 77085.

The Shade Tree Program, currently marketed under the name *Trees for You* ("TFY"), provides desert-adapted trees to TEP customers. As currently approved the program runs from September through May. Delivery is currently suspended during the summer months (June to August), because of the low survival rate for trees planted during the summer heat. However, TEP may elect to eliminate or reduce the summer suspension period if it has a significant negative impact on participation. The tree incentives are as follows:

- The fee per 15-gallon tree for non-residential customers is $25.
- The fee per 5-gallon tree for non-residential customers is $10.
- The fee per 5-gallon tree for residential customers is $5.

2. Modifications Proposed

TEP proposes one minor modification to this marketing and delivery strategy. In order to prevent a shortage of trees for other eligible customers, the program currently limits customers to three 5-gallon trees per year. TEP requests a slight modification to specify the program may limit customers to up to three 5-gallon trees or less per year. This change will give the company greater flexibility to accommodate varying levels of customer demand for trees and help ensure the ability for more customers to participate within the program's budget.

3. Program objectives and rationale

There are no proposed modifications to the Program's objectives and rationale. The objective of the Program is to promote energy conservation, encourage environmental sustainability, and increase awareness of the environmental benefits associated with planting low water usage trees. Along with the energy and demand savings trees provide to the homes, trees also provide habitat for wildlife, absorb air and water pollutants, control storm-water runoff and soil erosion, reduce noise pollution, and provide an aesthetic beauty to neighborhoods and the community.

4. Targeted market segment

There are no proposed modifications to the Program's eligibility criteria. The Program is currently available to all TEP customers.

5. Estimated level of customer participation

The estimated level of customer participation for 2021 is shown in Appendix B, Table B-1.

6. Estimate of the baseline

The estimated baseline for 2021 is shown in Appendix B, Table B-2.

7. Estimated societal benefits and savings

The estimated societal benefits and savings for 2021 are shown in Appendix B, Table B-3.

8. Estimated societal costs

The estimated societal costs for 2021 are shown in Appendix B, Table B-3.

9. Estimated environmental benefits

The estimated environmental benefits for 2021 are shown in Appendix B, Table B-4.

10. Estimated benefit-cost ratio

The estimated benefit-cost ratio for 2021 is shown in Appendix B, Table B-3.

11. Marketing and delivery strategy

The Program is delivered in coordination with third party vendor, primarily in partnership with local nurseries. Residents complete an online application and pay for the tree(s) via TEP's website online marketplace. The third-party vendor delivers the tree(s) to a participating nursery of the customer's choice for pickup by the customer. Residential customers are limited to three 5-gallon trees per year, in order to prevent a potential shortage for other eligible customers. Each tree must be planted on the south, west, or east side of the home, and within 15 feet of an occupied structure. Delivery is currently suspended during the summer months (June to August), because of the low survival rate for trees planted during the summer heat. However, TEP may elect to eliminate or reduce the summer suspension period if it has a significant negative impact on participation.

Community organizations, commercial customers, and schools are also eligible to participate in the Program. These customers have the option to purchase up to ten 15-gallon trees per year, which must also be planted according to the above guidelines. This limit can be increased if a non-residential customer can demonstrate sufficient space to plant the shade tree, and if there are sufficient supplies for residential customers. Partner nurseries deliver the trees directly to their intended sites for non-residential customers.

All customers that receive trees through the Shade Tree Program also receive information on caring for and planting shade trees. TEP staff performs post-inspection and verification of installation on 200 randomly selected trees on a biennial basis. The sample size is designed to generate an acceptable level of confidence that a sufficiently high proportion of Program trees are planted properly. During

inspection, tree mortality is noted as well. This inspection protocol ensures that the delivered trees are planted in accordance with program guidelines.

As part of its outreach activities TEP occasionally gives away complimentary shade trees at community events in order to draw customers to its education and outreach booth and provide customers with information on additional TEP EE programs.

TEP proposes one minor modification to this marketing and delivery strategy. In order to prevent a shortage of trees for other eligible customers, the program currently limits customers to three 5-gallon trees per year. TEP requests a slight modification to specify the program may offer customers up to three 5-gallon trees per year, depending on available tree supplies and customer demand. This change will give the company greater flexibility to accommodate varying levels of customer demand for trees and help ensure the ability for more customers to participate within the program's budget.

12. Estimated annual costs and budget

The estimated annual Program costs and budget for 2021 are shown in Table 3. The estimated annual budget and costs for the Program's existing measures are shown in Appendix B, Table B-5.

13. Implementation schedule

TEP plans to implement any proposed changes to the program after receiving the Commission's approval.

14. Description of MER plan

The MER plan is consistent with the strategy previously approved by the Commission.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all the information it believes is necessary for consideration of the tariff filing for this program.

Commercial & Industrial Programs

This introductory section includes a general summary of points and requested modifications applicable to all TEP's Commercial and Industrial ("C&I") programs.

TEP generally defines the customer as the DSM decision maker at an organization or firm that receives electric service from TEP on an approved rate schedule.

The requested incentive levels for program measures represent the weighted average of incentives for each installed unit, which vary depending on the unit energy usage, efficiency, capacity, power, and incremental cost of the DSM measure compared to its installed baseline equipment.

2. Modifications Proposed

As approved in Decision 77085, TEP offers incentives of up to 50% of the incremental cost of the measure using a min/max model. TEP proposes to adjust the min/max range of incentive levels to up to 75% of incremental cost, as shown in Appendix B, Table B-6. This will give TEP the flexibility to adjust incentives up or down based on changing market conditions and savings goals. It will also enable the Company to adjust incentive levels based on non-residential customer rate class in order to provide additional financial support to small businesses and nonprofits that often lack the financial means or access to capital to invest in energy efficiency projects in the same manner as larger and better funded commercial and industrial customers.

Similarly, TEP requests to incorporate the min/max model into the custom measure calculation and set the incentive range to $0.06 to $0.10 per kWh saved. These changes will give TEP the flexibility to escalate incentives up or down based market conditions, savings goals, and rate class.

As approved in Decision 77085, for any individual project, incentives are limited to a cap of $600,000 per year. Any additional projects for the same customer in the same year are eligible for up to 50% of standard incentive amounts. For 2021, TEP asks to modify this guidance for the incentive cap to further specify that within the above-mentioned parameters no single customer will be eligible to receive more than 25% of a program's total annual incentive budget. This clarification will help to ensure that funding remains available for other customers.

For budgetary purposes, contractor remuneration for installation is now classified under program incentive costs (similar to the way that other Arizona utilities are currently classifying these costs) because this more accurately reflects the reduction in costs that would otherwise be required to deliver energy efficiency services that benefit TEP customers. These incentives reduce the contractors' administrative burden associated with the program and help program trade allies deliver services competitively as compared to other contractors who do not participate, which provides direct benefits to TEP customers who receive these services.

TEP proposes that the above-mentioned modifications apply to all the Company's C&I DSM programs.

A. Commercial & Industrial (C&I) Comprehensive Program (Existing Program)

1. Description of Program

The C&I Comprehensive Program, currently marketed as the "EasySave Plus" program, is an existing program which has been offered since 2008. It was most recently approved by the Commission in Decision 77085. The program provides incentives to TEP's non-residential customers for the installation of DSM measures in existing facilities. Eligible participants include small and large commercial customers, industrial customers, schools, nonprofits, and other customers receiving service under a non-residential tariff.

The Program currently uses a min/max incentive model, shown in Appendix B, Table B-6, to offer incentives up to a maximum of 50% of incremental cost for the installation of high efficiency HVAC, lighting, and refrigeration equipment and controls, motors and motor drives, plug load equipment, as well as many other high-efficiency measures. The incremental cost is the cost of equipment of the energy efficient measure over the cost of equipment of a less efficient baseline unit that would otherwise have been installed in absence of incentives. The baseline at a minimum is considered to meet the federal equipment standards and/or local building codes or actual local building practices. In some cases, the incremental cost may include the cost of labor if an energy efficient measure is a retrofit project that would not otherwise have been undertaken by a building owner in the absence of incentives.

The incentive levels for C&I Comprehensive Program measures represent the weighted average of incentives for each installed unit, which vary depending on the unit energy usage, efficiency, capacity, power, and incremental cost of the DSM measure compared to its installed baseline equipment.

The program also provides customers with the opportunity to propose and receive rebates for innovative DSM solutions through custom measures. The currently approved incentive for annual energy saved for all custom cost-effective measures is $0.06 per kWh.

2. Modifications Proposed

TEP proposes to continue the C&I Comprehensive Program in 2021 with the following modifications:

In order to reduce costs and improve program cost effectiveness, TEP proposes to incorporate the existing Small Business Direct Install and School Facilities Program and the Commercial New Construction Program into the C&I Comprehensive Program.

Due to lower utility avoided costs combined with smaller projects and more limited operating hours that reduce overall savings, the Small Business Direct Install and School Facilities Program is not currently cost effective as a stand along program. Consequently, it needs to be combined into Comprehensive C&I to maintain overall program cost effectiveness.

TEP proposes to maintain service to the small commercial customers previously served through the Small Business Direct Install and School Facilities Program from within the C&I Comprehensive Program. In recognition of the fact that small businesses and schools often have differing business needs, limited staffing and expertise, smaller budgets, less access to capital to fund or finance energy efficiency projects, and shorter payback requirements, TEP intends to offer higher incentive levels for deemed and custom measures installed at qualifying School facilities or Small Businesses within the

C&I program to accommodate the special needs of these customers. In response to Commissioner Marquez Peterson's letter on February 19, 2020, TEP also proposes to offer these higher incentive levels to encourage efficiency improvements for qualifying historic and cultural facilities.

TEP intends to maintain the Commercial New Construction Program parameters as approved by the Commission in Decision 77085 with the following exception: Customers served under the Commercial Construction program element will be no longer be held to the previous $75,000 per project limit and will instead be subject to the newly proposed incentive caps for all C&I customers as discussed above.

The Company proposes to discontinue offering incentives for Premium T8 Lighting because the measure is no longer cost-effective and because this lighting technology has been bypassed by more cost-effective technologies, such as LEDs.

Furthermore, following updates associated with changes in equipment costs and utility avoided costs, TEP found a number of existing measures to be not currently cost-effective, based on a societal benefit to cost ratio of less than 1, as can be found in Appendix B, Table B-3. Consequently, TEP intends to suspend the following existing measures until such time that cost-effectiveness can be returned to a passing level.

- Anti-Sweat Heater Controls
- Commercial Kitchen Exhaust Fans
- Energy Efficient Exit Signs
- Energy Efficient TEFC Motors
- Evaporative Fan Controls
- Green Motor Rewind
- Heat Pump Water Heaters
- High Performance Glaze
- PTAC
- PTHP
- Pulse Start Metal Halide Interior
- Reduced Lighting Power Density
- VSD Cycling Dryer Compressors
- VSD Automated Drain Trap Compressor
- Variable Refrigerant Flow
- Window Films

Due to lower utility avoided costs, the EMS HVAC Delivery measure is projected to be less than cost-effective in 2021, with a benefit to cost ratio of 0.84. However, TEP proposes to continue offering this measure in 2021 while the Company simultaneously works to improve cost effectiveness. This measure is of central importance when it comes to helping customers understand and control their energy use and to shift load to off-peak periods. And today's energy management systems are Wi-Fi enabled and cloud connected, offering many potential additional benefits that may not be captured in the current benefit cost screening including remote monitoring of facility performance, benchmarking multiple facilities to identify outliers that need energy improvements, and automated messaging to proactively draw attention to building settings that are out of range and need to be adjusted. And most importantly,

these connected building controls offer the ability for facilities to dynamically shift loads in response to utility rate signals and to participate in future utility demand response programs which will offer significant additional benefits in peak demand savings that are not currently being counted in the benefit cost test. For these reasons, TEP seeks to continue offering this measure until the Company files its subsequent DSM plan in 2022. This will enable us to continue helping customers save energy and shift load while TEP seeks to modify the measure to improve cost effectiveness.

3. Program objectives and rationale

TEP proposes to expand the objectives and rationale for this program to encompass the customers served under the Commercial New Construction Program and the Small Business Direct Install and School Facilities Program.

The goal of the C&I Comprehensive Program is to encourage TEP's non-residential customers to install DSM measures in new and existing facilities. More specifically, the program is designed to:

- Provide incentives to non-residential customers for the installation of high-efficiency lighting, HVAC, refrigeration, motors, air compressors, plug load equipment and controls, and other equipment, which reduce building energy usage and peak demand
- Overcome market barriers, such as:
  - Lack of awareness of the benefits and costs of DSM improvements
  - Performance uncertainty associated with DSM projects
  - High initial cost of DSM measures
- Increase awareness and knowledge of facility operators, managers, and decision makers of the benefits of high-efficiency equipment and systems.

4. Targeted market segment

The C&I Comprehensive Program is available to TEP's small and large commercial and industrial customers, schools, small businesses, and other customers who receive service from TEP under non-residential tariffs. To be eligible, TEP non-residential customers must replace equipment installed in facilities with more efficient equipment as defined in each measure's incentive requirements.

TEP proposes to expand the target market segments for this program to encompass the customers served under the Commercial New Construction and Small Business Direct Install and School Facilities Programs.

The Commercial New Construction Program element serves the same customer base as the C&I Comprehensive Program, but focuses on building owners, developers, and designers, who are undertaking new commercial building projects or major renovations in existing buildings within TEP's service territory. Major renovations include substantial changes to an existing structure, ranging from complete gutting of a building to installation of insulation, new windows, HVAC equipment, etc. TEP proposes to target and serve the needs of these customers from within the C&I Comprehensive Program.

The Small Business Direct Install and School Facilities Program elements encourage small businesses and schools to install efficient equipment. They serve non-residential customers on one of the following

rate plans: Small General Service Basic (TGSGS), Small General Service Time-of-Use (TGSGST), Small General Service Peak Demand (TGSGSD) or Small General Service Demand Time-of-Use (TGSGSDT). TEP proposes to target and serve the needs of these customers from within the C&I Comprehensive Program.

5. Estimated level of customer participation in program or measure

The estimated level of customer participation for 2021 is shown in Appendix A, Table A-1 for proposed new measures and for existing measures in Appendix B, Table B-1.

6. Estimate of the baseline

The estimates of the baseline for 2021 for proposed new measures is shown in Appendix A, Table A-2 and for existing measures in Appendix B, Table B-2.

7. Estimated societal benefits and savings from program or measure

The estimated societal benefits and savings for 2021 for proposed new measures are shown in Appendix A, Table A-3 and for existing measures in Appendix B, Table B-3.

8. Estimated societal costs

The estimated societal costs for 2021 for proposed new measures are shown in Appendix A, Table A-3 and for existing measures in Appendix B, Table B-3.

9. Estimated environmental benefits

The estimated environmental benefits for 2021 for proposed new measures are shown in Appendix A, Table A-4 and for existing measures in Appendix B, Table B-4.

10. Estimated benefit-cost ratio

The estimated benefit-cost ratio for 2021 for proposed new measures is shown in Appendix A, Table A-3 and for existing measures in Appendix B, Table B-3. TEP will continue to monitor the cost-effectiveness of the measures and the program.

11. Marketing and delivery strategy

TEP proposes to expand the marketing and delivery for this program to encompass the customers served under the Commercial New Construction and the Small Business Direct Install and School Facilities Programs.

The Company utilizes internal and external resources to work with customers and contractors to promote participation in the C&I Comprehensive Program. TEP conducts marketing and advertising campaigns highlighting that high efficiency equipment reduces customer energy bills and benefits the environment. The program provides consumers and trade allies with educational and promotional material designed to provide decision makers with the ability to make more informed choices.

For the C&I Comprehensive Program TEP assigns an in-house program manager to oversee the program and provide guidance on program activities consistent with TEP's goals and customer service requirements. TEP works with an IC on systems for collecting the data needed for program management and evaluation. It is the customer's responsibility to report to the IC any rebates and incentives offered by other entities (e.g. federal, state, and/or local governments) for energy efficiency upgrades received or applied for by the customer. The incentive paid to the customer by TEP is net of these additional incentives.

The Commercial New Construction Program element provides building energy design resources and educational and promotional materials to building owners, developers, and design teams in order to better enable decision makers to make informed choices about various critical DSM options during design and construction. The new construction marketing strategy includes education seminars, website promotion, outreach and presentations at professional and community forums, as well as direct outreach. TEP assigns an in-house program manager to oversee these efforts and provide guidance on program activities consistent with TEP's goals and customer service requirements. TEP works with an IC on systems for collecting the data needed for program management, building design proposals to ASHRAE 90.1 Standard – 2010 version, and evaluation. These efforts will continue when the Commercial New Construction element is incorporated under the C&I Comprehensive program.

When the Small Business Direct Install and School Facilities elements are incorporated under the C&I Comprehensive program, an in-house TEP program manager will oversee the efforts to serve the small businesses and schools. The IC working with TEP will continue to provide the primary contact for small business customers. The IC will use its Outreach Coordinators to seek out and meet with SGS customers to inform them about the program. In addition, the IC trains local trade Allies to assist and promote the program to SGS customers. The IC will continue to be responsible for application and incentive processing, monitoring the installation contractors, participation tracking and reporting, and overall quality control and management of the delivery process. In order to encourage greater participation by both contractors and commercial customers, the program will continue to use a point of sale midstream buy down that enables any vendor who supplies products that are pre-approved for program efficiency guidelines to provide instant rebates at their local retail locations. Utilizing internal and external resources, the marketing and communications strategy is designed to inform small business customers on how they can participate and realize the benefits of the program. The strategy includes specific outreach to customers and contractors who complete retrofit projects for small business. Another important component of the marketing plan will continue to be a focus on the content and functionality of the TEP website, as well as through the online energy marketplace that is designed to promote customer adoption of EE measures with consumer education and behavior change. The online marketplace is described in the Consumer Education and Outreach section below.

12. Estimated annual costs and budget

The estimated annual cost and budget for 2021 for the program are shown in Table 3 and Table 4.

13. Implementation schedule

TEP plans to implement any proposed changes to the program after receiving the Commission's approval.

14. MER plan

The MER plan is consistent with the strategy previously approved by the Commission.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all the information it believes is necessary for consideration of the tariff filing for this program.

B. Commercial New Construction Program (Existing Program)

1. Description of program or measure

The Commercial New Construction ("CNC") program is an existing program most recently approved by the Commission in Decision 77085. The CNC Program is designed to promote energy efficiency and load management in new commercial facilities. It drives energy and demand savings by targeting building developers and providing incentives for commercial facilities that incorporate more efficient construction and designs that exceed building codes adopted in TEP territories. Customers may elect to participate in the CNC Program by applying directly to TEP or through an installation contractor.

In addition, the CNC Program provides technical support and consumer education regarding available energy efficiency design options for new commercial construction.

TEP currently pays incentives to the building owners or developers at $0.06 per kWh for building energy use reduction in kWh during the first year of building operation up to a maximum of 50% of the incremental cost of energy efficient equipment, construction, or design over the baseline equipment, construction, or design cost necessary to meet the local building codes. The measure analysis uses the min/max model applied to the weighted average.

Each project has a not-to-exceed incentive cap of $75,000 per project. Moreover, all incentives for customers received through any TEP offering are subject to the cap approved for TEP's 2018 Plan in Decision 77085, specifying that incentives any C&I customer may receive on an annual basis be limited to $600,000, plus 50% of any remaining eligible incentive amount.

2. Modifications Proposed

In order to reduce administrative costs, TEP proposes that the Commercial New Construction program be incorporated into the C&I Comprehensive Program with parameters to continue as approved in Decision 77085, except for the following:

Commercial New Construction participation rules will be simplified so participating customers will no longer be held to two different incentive caps. The previous $75,0000 per project limit will be removed, while maintaining the current cap of $600,000 per year, as approved in Decision 77085, and instituting the newly proposed incentive cap specifying that no individual C&I customer may be eligible to receive more than 25% of a program's annual incentive budget, as requested at the beginning of the C&I section in this document.

3. Program objectives and rationale

TEP proposes to incorporate this program into the C&I Comprehensive Program in order to maintain cost effectiveness. Otherwise, there are no proposed modifications to the objectives and rationale. The primary goal of the program is to encourage energy and demand savings through more efficient new building design and construction of new commercial projects in TEP's service area.

4. Targeted market segment

TEP proposes to incorporate this program into the C&I Comprehensive Program. Otherwise, there are no proposed modifications to the targeted market segments for this program. The CNC Program element is available to non-residential customers of all rate classes, specifically building owners, developers, and designers, undertaking new commercial building projects or major renovations in existing buildings within TEP's service territory. Major renovations include substantial changes to an existing structure, ranging from complete gutting of a building to installation of insulation, new windows, HVAC equipment, etc.

5. Estimated level of customer participation in program or measure

TEP proposes to incorporate this program into the C&I Comprehensive Program. The estimated level of customer participation in 2021 has been included under that program and can be found in Appendix B, Table B-1.

6. Estimate of the baseline

TEP proposes to incorporate this program into the C&I Comprehensive Program. The estimates of the baseline for existing measures have been included under that program and can be found in Appendix B, Table B-2.

The baseline is determined based on IECC / ASHRAE 90.1 building code adopted in TEP territories. As the versions of the building codes change over time and local jurisdictions adopt updated versions, TEP updates the baseline of the measures to reflect the requirements set in the building codes. For 2021, the baseline is set to reflect requirements set forth in IECC 2012 and ASHRAE 90.1 – 2010 versions. TEP will update the baseline if new versions of the building code are adopted by TEP's jurisdictions.

7. Estimated societal benefits and savings from program or measure

TEP proposes to incorporate this program into the C&I Comprehensive Program. The estimated societal benefits and savings for existing measures have been included under that program and can be found in in Appendix B, Table B-3.

8. Estimated societal costs

TEP proposes to incorporate this program into the C&I Comprehensive Program. The estimated societal costs for existing measures have been included under that program and can be found in in Appendix B, Table B-3.

9. Estimated environmental benefits

TEP proposes to incorporate this program into the C&I Comprehensive Program. The estimated environmental benefits for 2021 for existing measures have been included under that program and can be found in Appendix B, Table B-4.

10. Estimated benefit-cost ratio

TEP proposes to incorporate this program into the C&I Comprehensive Program. The estimated benefit-cost ratio for 2021 for existing measures have been included under that program and can be found in Appendix B, Table B-3.

In Decision 77085, the Commission determined measures in the CNC Program to be cost-effective. TEP will continue to monitor the cost-effectiveness of the measures and the program.

11. Marketing and delivery strategy

TEP proposes to incorporate this program into the C&I Comprehensive Program. Otherwise, there are no proposed modifications to the marketing and delivery strategy. The CNC Program provides building energy design resources, and educational and promotional materials to building owners, developers, and design teams, in order to provide decision makers in the commercial new construction market with the ability to make informed choices. The Company uses internal and external resources to promote education and understanding of various critical DSM options during building design and construction, encouraging building owners, developers, and design teams to explore all available DSM options during design stages of building construction. The marketing strategy includes education seminars, website promotion, outreach and presentations at professional and community forums, as well as direct outreach.

TEP assigns an in-house program manager to oversee the program, provide guidance on program activities consistent with TEP's goals and customer service requirements. TEP works with an IC on systems for collecting the data needed for program management, building design proposals to ASHRAE 90.1 Standard – 2010 version, and evaluation.

12. Estimated annual costs and budget

TEP proposes to incorporate this program into the C&I Comprehensive Program. The estimated annual cost and budget for 2021 have been included under that program and can be found in Table 3 and Table 4.

13. Implementation schedule

TEP plans to implement any proposed changes to the program after receiving the Commission's approval.

14. Description of the plan for MER

The MER plan is consistent with the strategy previously approved by the Commission

15. Other information relevant to the consideration of the tariff filing

TEP has provided all the information it believes is necessary for consideration of the tariff filing for this program.

C. Schools Energy Efficiency Pilot Program (Existing)

1. Description of Program or Measure

The Schools Energy Efficiency Pilot Program is an existing program approved by the Commission in Decision 75450 (February 11, 2016). It offers incentives for DSM measures in existing K-12 schools that cannot raise the necessary capital to participate in the current TEP non-residential program. The program provides incentives at 100% of the project cost for the installation of DSM measures including: lighting equipment and controls; HVAC equipment; motors and motor drives; refrigeration, and custom measures. In order to allow more schools to participate, the SEE program has a cap of $150,000 per public school or charter school organization. This cap supersedes the incentive caps for all C&I customers.

2. Modifications Proposed

TEP proposes the following modifications to the Program.

Given that this program has been successfully operating since 2016, TEP would like the Commission to formalize this program and eliminate the wording "Pilot" to recognize its formal status as an approved program.

TEP intends to operate the School Energy Efficiency program with an annual budget of $1,000,000 in 2021 in accordance with Decision 77085.

TEP proposes to adjust the current cap of $150,000 per-public school district or charter organization to incorporate a sliding scale based on total relative enrollment. The new adjusted maximum for school districts would be $375,000, while the maximum cap for charter organizations would be $100,000. This change will enable TEP to more equitably serve financially disadvantaged schools in larger school districts. For example, Tucson Unified School District, the largest school district within the Company's territory with 83 schools, can reach the current cap of $150,000 with just three school projects, thus rendering a significant number of additional schools unable to participate due to budgetary limits.

In order to accommodate a wider range of possible projects with higher levels of efficiency, TEP is proposing to allow the use of custom measure incentives within this program. As has been discussed above for the C&I program, TEP is proposing to incorporate the min/max model into the custom calculation and set the incentive range to $0.06 to $0.10 per kWh saved. This will provide TEP the flexibility to lower or adjust incentives based on changing market and savings projections.

After updates associated with changes in equipment costs and utility avoided costs, initial estimates indicate that this program may no longer be cost-effective, based on a societal benefit to cost ratio of greater than or equal to 1.0, as shown in Appendix B, Table B-3. However, TEP recognizes the

prominent place that this program deserves within this DSM proposal given the high value it provides for the community by prioritizing energy efficiency funds for low income schools and by working exclusively with local contractors to complete the retrofits. Consequently, TEP requests permission to continue implementation of this program while improving cost-effectiveness, including continuing the current practice of ranking both projects and contractor bids to ensure that program dollars are allocated to high priority school projects based on the best cost per kWh.

3. Program objectives and rationale

There are no proposed modifications to the Program's objectives and rationale. The SEE program is designed to address barriers to entry for this market segment, including issues of limited investment capital, limited awareness of energy cost savings, and required short-term payback.

Preference is given to schools that demonstrate a lack of ability to raise the necessary capital to participate in TEP's other non-residential programs.

4. Market Segment Description

There are no proposed modifications to the Program's market segment. Public or charter school grades K-12 that have documented inability to raise capital to fund the cost of the projects themselves. Projects must demonstrate significant opportunity for energy savings from DSM retrofit projects. Priority will be given to schools that have not done any recent DSM retrofits and have not received rebates from the existing schools program during the past three years.

5. Estimated Level of Customer Participation

The estimated level of customer participation for 2021 is shown in Appendix B, Table B-1.

6. Estimate of the Baseline

The estimated baseline for 2021 is shown in Appendix B, Table B-2.

7. Estimated Societal Benefits and Savings

The estimated societal benefits and savings for 2021 are shown in Appendix B, Table B-3.

8. Estimated Societal Costs

The estimated societal costs for 2021 are shown in Appendix B, Table B-3.

9. Estimated Environmental Benefits

The estimated environmental benefits for 2021 are shown in Appendix B, Table B-4.

10. Estimated Benefit-Cost Ratio

The estimated benefit-cost ratio for 2021 is shown in Appendix B, Table B-3.

11. Marketing and Delivery Strategy

There are no proposed modifications to the Program's marketing and delivery strategy. The Company solicits participation within the TEP service territory by contacting school districts and charter school organizations to verify eligibility and encourage participation in the program. The program will be managed by an IC under direction of the Company program manager.

12. Estimated Annual Costs and Budget

The estimated annual program costs and budget for 2021 are shown in Table 3. The estimated annual budget and costs for the Program's existing measures are shown in Appendix B, Table B-5.

13. Implementation Schedule

TEP plans to implement any proposed changes to the program after receiving the Commission's approval.

14. Description of the Plan for MER

The MER plan is consistent with the previously filed strategies for TEP's other programs.

15. Any Other Information the Commission Believes is Relevant to the Consideration of the Tariff Filing

TEP has provided all the information it believes is necessary for consideration of the tariff filing for this program.

D. Small Business Direct Install & School Facilities Program (Existing Program)

1. Description of program

The TEP Small Business Direct Install and School Facilities program, marketed as the "EasySave Program," is an existing program most recently approved by the Commission in Decision 77085. The program is open to participation by all small non-residential customers and all K-12 schools in the TEP service territory. The program provides incentives for retrofit and replace-on-burnout DSM measures in existing small businesses, including high-efficiency lighting equipment upgrades, high-efficiency HVAC equipment, lighting controls, programmable thermostats, and selected refrigeration measures. The program utilizes an online proposal generation and project tracking application to reduce transaction costs.

In order to respond to market trends for all approved measures within this program, TEP uses a min/max incentive model that currently pays incentives of up to 50% of incremental costs, which is defined as the installed cost of an energy efficient measure over the installed cost of a less efficient baseline unit that would otherwise have been installed in absence of incentives. The baseline at a minimum is considered to meet the federal equipment standards and/or local building codes. In some cases, the incremental cost may include the total cost of labor if an energy efficient measure is a retrofit project that would not otherwise have been undertaken by a building owner in absence of incentives.

TEP currently uses the min/max model to pay incentives of $0.06 per kWh saved for all lighting measures during the first year of equipment operation. This strategy allows a greater incentive for lighting retrofits of systems that operate greater hours per year, as these result in greater energy savings compared to a similar lighting system that operates less hours per year.

2. Modifications Proposed

In order to reduce administrative costs, TEP proposes that the small business direct install and school facilities program be incorporated into the C&I Comprehensive Program in 2021 with the following changes:

3. Program objectives and rationale

TEP proposes to incorporate this program into the C&I Comprehensive Program. Otherwise, there are no proposed modifications to the objectives and rationale. The primary goal of the program is to encourage small commercial customers and schools in TEP's service territory to install DSM measures in existing facilities. More specifically, the program is designed to:

- Encourage energy and demand savings through the installation of HVAC equipment, high-efficiency lighting equipment and controls, energy-efficient refrigeration system retrofits, etc.;
- Encourage contractors to promote the program and provide turn-key installation services to small business customers;
- Assure the participation process is clear, easy to understand and simple;
- Increase the awareness and knowledge of facility managers and other decision makers on the benefits of high-efficiency equipment and systems.

4. Targeted market segment

TEP proposes to incorporate this program into the C&I Comprehensive Program. Otherwise, there are no proposed modifications to the targeted market segment. The Program offers incentives directly to contractors for the installation of high efficiency measures at existing small business facilities and schools. The existing Program is open to non-residential customers, including all existing K-12 school facilities, including charter, private, and public schools, within TEP's service territory who are receiving service under TEP's non-residential rate tariff.

5. Estimated level of customer participation in program or measure

TEP proposes to incorporate this program into the C&I Comprehensive Program. The estimated level of customer participation in 2021 has been included under that program and can be found in Appendix B, Table B-1.

6. Estimate of the baseline

TEP proposes to incorporate this program into the C&I Comprehensive Program. The estimates of the baseline for existing measures have been included under that program and can be found in Appendix B, Table B-2.

7. Estimated societal benefits and savings from program or measure

TEP proposes to incorporate this program into the C&I Comprehensive Program. The estimated societal benefits and savings for existing measures have been included under that program and can be found in in Appendix B, Table B-3.

8. Estimated societal costs

TEP proposes to incorporate this program into the C&I Comprehensive Program. The estimated societal costs for existing measures have been included under that program and can be found in in Appendix B, Table B-3.

9. Estimated environmental benefits

TEP proposes to incorporate this program into the C&I Comprehensive Program. The estimated environmental benefits for 2021 for existing measures have been included under that program and can be found in Appendix B, Table B-4.

10. Estimated benefit-cost ratio

TEP proposes to incorporate this program into the C&I Comprehensive Program. The estimated benefit-cost ratio for 2021 for existing measures have been included under that program and can be found in Appendix B, Table B-3.

11. Marketing and delivery strategy

TEP proposes to incorporate this program into the C&I Comprehensive Program. The Company anticipates relatively few changes in marketing or delivery other than those arising from improved administrative efficiency.

In order to encourage greater participation by both contractors and commercial customers, the program will continue to use a point of sale midstream buy down that enables any vendor who supplies products that are pre-approved for program efficiency guidelines to provide instant rebates at their local retail locations.

An in-house TEP program manager will continue to oversee the program and provide guidance on program activities consistent with TEP's goals and customer service requirements. The IC working with TEP will continue to provide the primary contact for small business customers. The IC is responsible for application and incentive processing, monitoring the installation contractors, participation tracking and reporting, and overall quality control and management of the delivery process.

Utilizing internal and external resources, the marketing and communications strategy is designed to inform small business customers on how they can participate and realize the benefits of the program. The strategy includes specific outreach to customers and contractors who complete retrofit projects for small business. Another important component of the marketing plan is a focus on the content and functionality of the TEP website, which directs customers to information about the program.

While these elements will remain the same, TEP proposes the following additions and modifications to program marketing and delivery by expanding these promotional efforts to also include an educational program and through an online energy marketplace that is designed to promote customer adoption of DSM measures with consumer education and behavior change. The online marketplace is described in the Consumer Education and Outreach section below.

12. Estimated annual costs and budget

TEP proposes to incorporate this program into the C&I Comprehensive Program. The estimated annual cost and budget for 2021 have been included under that program and can be found in Table 3 and Table 4.

13. Implementation schedule

TEP plans to implement any proposed changes to the program after receiving the Commission's approval.

14. Description of the plan for MER

The MER plan is consistent with the strategy previously approved by the Commission

15. Other information relevant to the consideration of the tariff filing

TEP has provided all the information it believes is necessary for consideration of the tariff filing for this program.

E. Combined Heat & Power ("CHP") Pilot Program (Existing Program)

TEP is requesting no changes for the CHP Pilot Program. The Company will continue to count savings toward the EE Standard when any new CHP installation projects are implemented in collaboration with TEP in its territory, as has been most recently approved by the Commission in Decision 77085.

F. Commercial and Industrial (C&I) Demand Response Program (Existing Program)

1. Description of program or measure

The C&I Demand Response Program, also known as C&I Direct Load Control ("DLC") or Direct Load Response Program and marketed as "TEP DemandSmart," is an existing program approved by the Commission in Decision 71787 (July 12, 2010). The Program is designed to manage peak demand and mitigate system emergencies through C&I load curtailment. The Program has historically been administered by an implementation contractor who has negotiated load reduction agreements with

commercial customers to provide TEP a confirmed and guaranteed load reduction capacity available upon request. The Program provides up to 40 MW of summer peak demand reduction, is available for up to 80 hours per customer per year, with a typical load control event lasting 3 to 4 hours. Customers are compensated with incentives for their participation at negotiated levels depending on multiple factors, including the size of the facility, amount of kW under load control, and the frequency with which the resource can be utilized. Some customers only participate in emergency load control events at a reduced incentive level. In the 2018 Plan, TEP shifted the administration of this program to in-house personnel to improve cost-effectiveness, as approved in Decision No 77085.

2. Proposed Modifications

The Company proposes to modify this program to clarify that participating nonresidential customers must be able to provide a minimum of at least 100 kW of load reduction when called upon.

3. Program objectives and rationale

There are no proposed modifications to program objectives and rationale.

Slight adjustments to customer controls for chillers, rooftop AC units, lighting, fans, and other technologies can reduce power demand at peak times to lower customer bills, save on-peak energy resources and help alleviate system constraints. In addition, the program may be used to support standard benefits of demand-response programs, which include:

- Avoided firm capacity required to meet reserve requirements;
- Greater grid stability and reduction in outages due to reduced grid demand.

4. Targeted market segment

The C&I DLC program is targeted at non-residential customers in TEP's service territory who can provide a minimum of 100 kW when called upon.

5. Estimated level of customer participation

The 2021 participation is forecasted to be similar to that of 2019, which consisted of 51 customer meters in the standard and emergency programs, 145 interruptible customers and 1 interruptible large mining customer, totaling 43.4 MW in 2019.

6. Estimate of the baseline

Not applicable.

7. Estimated societal benefits and savings

Not applicable.

8. Estimated societal costs

The estimated societal costs for the program for 2021 is shown in Table 3.

9. Estimated environmental benefits

Not applicable.

10. Estimated benefit-cost ratio

In Decision 74885, the Commission determined the Program to be cost-effective.

11. Marketing and delivery strategy

Recruitment is targeted at large commercial and industrial customers based on their ability to provide reliable and significant load control reductions when called upon. Customers are compensated with incentives for their participation at negotiated levels depending on multiple factors, including the size of the facility, amount of kW under load control, and the frequency with which the resource can be utilized. TEP anticipates this modification will reduce costs while delivering a more reliable load reduction resource.

In order to expand the potential load reduction for reliability purposes TEP has also partnered with municipal water utilities to initiate load control events on their pumping systems.

12. Estimated annual costs and budget

The estimated annual cost and budget for 2021 for the program are shown in Table 3 and Table 4.

13. Implementation schedule

TEP plans to implement any proposed changes to the program after receiving the Commission's approval.

14. Description of the plan for MER

The MER plan is consistent with the strategy previously approved by the Commission.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all the information it believes is necessary for consideration of the tariff filing for this program.

Behavioral Sector

The following section includes a summary of TEP's Behavioral Programs.

G. Behavioral Comprehensive (Existing Program)

1. Description of program

The Behavioral Comprehensive program is an existing program and was most recently approved by the Commission in Decision No. 77085. No modifications are being proposed for this Program.

The Program includes three educational subprograms for both residential and commercial customers. The focus of these subprograms is to educate current and future energy users on how changes in behavior, including purchasing decisions, can improve efficiency, manage energy demand, and help lower energy bills for the consumer.

The three subprograms consist of:

- K-12 Education: The K-12 education program is a three-part energy education program that includes a pre-visit lesson, an onsite classroom presentation, and a post-visit activity; all are aligned with the Arizona Department of Education standards. Students are instructed on how to save energy in their homes and are provided with a take-home energy-saving kit containing one or more of: LED light bulbs, bathroom faucet aerators, kitchen faucet aerators, low flow showerheads, and LED nightlights.
- Community Education: The community education program is designed to engage with community groups and work with public entities to offer DSM workshops. Customers who attend the workshops are educated on the benefits of DSM, emphasizing behavioral changes that lead to energy savings. Participants are provided with an energy-saving kit containing items such as LED light bulbs, bathroom faucet aerators, kitchen faucet aerators, low flow showerheads, and LED nightlights.
- Community Outreach Promotions: The Community Outreach program provides complimentary energy efficient items, such as LED light bulbs, through participation in community events and through collaboration with community organizations. The program complements the presence of TEP at community events and its overall education and outreach efforts and DSM messaging.

2. Modifications Proposed

No modifications are proposed.

3. Program objectives and rationale

There are no changes to the program objectives and rationale. The objective of the Program is to produce long-term energy and demand savings by influencing energy related behaviors and providing customers with information to help them better understand and manage their energy usage.

4. Targeted market segment

There are no proposed modifications to the targeted market segment. All TEP customers are eligible for this Program, with the primary focus on the following groups: residential customers, small and medium size commercial customers, and future customers (i.e. students).

5. Estimated level of customer participation

The estimated level of customer participation for 2021 is shown in Appendix A, Table A-1 for proposed new measures and for existing measures in Appendix B, Table B-1.

6. Estimate of the baseline

The estimates of the baseline for 2021 for proposed new measures is shown in Appendix A, Table A-2 and for existing measures in Appendix B, Table B-2.

7. Estimated societal benefits and savings

The estimated societal benefits and savings for 2021 for proposed new measures are shown in Appendix A, Table A-3 and for existing measures in Appendix B, Table B-3.

8. Estimated societal costs

The estimated societal costs for 2021 for proposed new measures are shown in Appendix A, Table A-3 and for existing measures in Appendix B, Table B-3.

9. Estimated environmental benefits

The estimated environmental benefits for 2021 for proposed new measures are shown in Appendix A, Table A-4 and for existing measures in Appendix B, Table B-4.

10. Estimated benefit-cost ratio

The estimated benefit-cost ratio for 2021 for proposed new measures is shown in Appendix A, Table A-3 and for existing measures in Appendix B, Table B-3.

11. Marketing and delivery strategy

Marketing and communications strategies include notifying TEP customers through updates to the website, training seminars, call center on-hold messages, direct mail promotions, outreach events, and working with industry specialists. The Program is delivered by TEP staff and/or an IC.

TEP proposes to augment the marketing and delivery strategy for this Program by also directing customers to the Online Marketplace that is discussed in the Consumer Education and Outreach section.

In addition to the measures directly provided by the program, TEP proposes to use this program to help educate customers and promote other energy savings programs and opportunities including the new load management measures that are being offered within the Load Management Pilot Program and to encourage customers to visit the Online Marketplace and place an order online.

12. Estimated annual costs and budget

The estimated annual Program costs and budget for 2021 are shown in Table 3. The estimated annual budget and costs for the Program's existing measures are shown in Appendix B, Table B-5. The corresponding data for proposed measures is shown in Appendix A, Table A-5.

13. Implementation schedule

TEP plans to implement any proposed changes to the program after receiving the Commission's approval.

14. Description of the plan for MER

The MER plan is consistent with the strategy previously approved by the Commission.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all of the information it believes is necessary for consideration of the tariff filing for this program.

H. Home Energy Reports (Existing Program)

1. Description of program

The Home Energy Reports ("HER") program is an existing program that was most recently approved by the Commission in Decision No. 77085. The Program is designed to promote behaviors that conserve energy or manage load, such as turning off lights or appliances, adjusting thermostat set points, and performing regular equipment maintenance. The Program is expected to encourage behavioral changes through targeted and comparative education regarding a participating customer's energy consumption. Program reports build customer awareness of how much energy they consume, and provide feedback on how a customer's behaviors can affect their home energy consumption.

2. Modifications Proposed

TEP intends to build upon the current offering to add more data analytics capabilities to the program that will provide more personalized energy guidance and recommendations for participants, including the ability to better understand individual customer usage patterns to help reduce and shift energy use to save on home energy costs. TEP believes the program modifications will drive higher savings per participant and lead to higher program cost effectiveness. Additionally, TEP plans to re-evaluate and may redesign the program to take advantage of new technologies. TEP will evaluate and report on program performance in the Company's future DSM Annual Progress Reports.

3. Program objectives and rationale

There are no proposed modifications to the Program's objectives and rationale. The Program's primary objective is to influence energy related behaviors by:

- Providing regular energy consumption reports and tips on how to manage energy use
- Engaging customers about their behavior and their installed products to enhance the accuracy of the energy reports; and

- Providing first time participants with a HER welcome pack that may include behavior-based energy conservation and energy management tips and/or items, such as LED light bulbs.

Additionally, the Program encourages customers to take advantage of other DSM related programs in order to promote efficient home operation and lower the customer's energy bills.

4. Targeted market segment

There are no proposed modifications to the targeted market segment. The Program is available to TEP residential customers.

5. Estimated level of customer participation

The estimated level of customer participation 2021 is shown in Appendix B, Table B-1.

6. Estimate of the baseline

The estimated baseline for 2021 is shown in Appendix B, Table B-2.

7. Estimated societal benefits and savings

The estimated societal benefits and savings for 2021 are shown in Appendix B, Table B-3.

8. Estimated societal costs

The estimated societal costs for 2021 are shown in Appendix B, Table B-3.

9. Estimated environmental benefits

The estimated environmental benefits for 2021 are shown in Appendix B, Table B-4.

10. Estimated benefit-cost ratio

The estimated benefit-cost ratio for 2021 is shown in Appendix B, Table B-3.

11. Marketing and delivery strategy

There are no proposed modifications to the marketing and delivery strategy for the Program. The Home Energy Reports are delivered to customers in print or digital formats. TEP jointly develops the marketing strategy and messaging with the IC. The Program is also included in the integrated marketing approach developed and used for all TEP DSM measures.

12. Estimated annual costs and budget

The estimated annual Program costs and budget for 2021 are shown in Table 3. The estimated annual budget and costs for the Program's existing measures are shown in Appendix B, Table B-5.

13. Implementation schedule

TEP plans to implement any proposed changes to the program after receiving the Commission's approval.

14. Description of MER plan

The MER plan is consistent with the strategy previously approved by the Commission.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all of the information it believes is necessary for consideration of the tariff filing for this Program.

Support Sector

The following section includes a summary of TEP's Support Programs.

I. Energy Codes and Standards Enhancement Program (Existing Program)

1. Description of program

The Energy Codes and Standards Enhancement Program is an existing program that was most recently approved by the Commission in Decision No. 77085.

The Program encourages energy and demand savings by promoting adherence to local building energy codes, the adoption of current nationally or internationally recognized building codes, and through enhanced energy efficient appliance standards. The Program uses a variety of methods to: i) improve levels of compliance with existing building energy codes and appliance standards; and ii) support the adoption of newer energy codes and appliance standards as warranted by market conditions. Specific program activities target the needs of the local code officials. The Program includes:

- Educating local code officials and building professionals on current standards and development
- Providing documentation of the specific local benefits of code enforcement and the promotion of newer energy code adoptions over time
- Ensuring utility incentive programs align with local energy codes and appliance standards; and
- Collaborating with relevant stakeholders while advancing the adoption and implementation of strong, effective building energy codes and appliance standards across the local jurisdictions within TEP's service territory.

2. Modifications Proposed

No modifications are being proposed for this Program.

3. Program objectives and rationale

There are no proposed modifications to the Program's objectives and rationale. The Program is designed to increase energy and demand savings in the residential and commercial sectors by improving levels of building code compliance, supporting periodic energy code updates/adoptions as warranted by market conditions, and advocating for higher efficiency appliances.

4. Targeted market segment

There are no proposed modifications to the targeted market segment. The Program seeks to engage building officials in local jurisdictions, as well as a variety of local building partners, within the TEP service territories.

5. Estimated level of customer participation

Not applicable.

6. Estimate of the baseline

Not applicable.

7. Estimated societal benefits and savings

Not applicable.

8. Estimated societal costs

The estimated societal costs for 2021 are shown in Table 3.

9. Estimated environmental benefits

Not applicable.

10. Estimated benefit-cost ratio

Not applicable.

11. Marketing and delivery strategy

There are no proposed modifications to the marketing and delivery strategy for this Program. Program staff maintains a consistent level of activity and engagement with relevant stakeholders. Activities include: participation in energy code adoption committees, technical support (calculations, research, information) for code adoption committees, public testimony in support of code adoption before city councils, participation in organizations that promote increased appliance standards for EE (such as the Consortium for Energy Efficiency), ensuring that ongoing DSM programs align well with energy code requirements and appliance standards, and funding for local agencies to enforce and improve energy codes and appliance standards over time. In accordance with Decision 77085, TEP intends to provide specific reporting on the program's activities each year in the DSM Annual Progress Report.

The marketing strategy includes website promotion, direct outreach to local code officials and networks of municipal leaders who are members of committees conducting activities related to building code enhancement and communications with other TEP DSM program implementation staff.

12. Estimated annual costs and budget

The estimated annual Program costs and budget for 2021 are shown in Table 3. The estimated annual budget and costs for the Program's existing measures are shown in Appendix B, Table B-5.

13. Implementation schedule

TEP plans to implement any proposed changes to the program after receiving the Commission's approval.

14. Description of the plan for MER

The MER plan is consistent with the strategy previously approved by the Commission.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all the information it believes is necessary for consideration of the tariff filing for this program.

J. Consumer Education and Outreach (Existing Program)

1. Description of program

The Consumer Education and Outreach (CEO) program is an existing program most recently approved by the Commission in Decision No. 77085.

The Program includes several educational components:

- Communications that encourage energy and demand savings through participation in the Company's DSM programs and pricing plans that promote reduced on-peak usage and demand.
- Various marketing efforts associated with participating in community events to provide educational opportunities to customers tied to promoting the overall message of EE, demand response, peak demand reduction, load management, and environmental sustainability.
- General Company cross-promotional marketing and advertising tied to promoting the overall message of EE, demand response, peak demand reduction, load management and environmental sustainability.
- A customer interface with interval data information to provide customers access to daily energy use feedback and related energy efficiency educational content.

2. Modifications Proposed

No modifications are proposed.

3. Program objectives and rationale

There are no proposed modifications to the program's overall objectives and rationale. The Program's objective is to increase awareness of, and participation in, the Company's other DSM programs, as well as to affect a broader market transformation through education, including beneficial changes in customer purchasing decisions and ongoing energy use behaviors.

4. Targeted market segment

There are no proposed modifications to the targeted market segment. This program targets TEP's residential and non-residential customers.

5. Estimated level of customer participation

Not applicable.

6. Estimate of the baseline

Not applicable.

7. Estimated societal benefits and savings

Not applicable.

8. Estimated societal costs

The estimated societal costs for 2021 are shown in Table 3.

9. Estimated environmental benefits

Not applicable.

10. Estimated benefit-cost ratio

Not applicable.

11. Marketing and delivery strategy

This program utilizes a variety of marketing and outreach channels, including but not limited to:

- Bill messages
- TEP's website (www.tep.com)
- The TEP mobile application
- Brochures
- Email newsletter articles
- Metro, traffic and radio advertising

- Outreach at community events

To enhance our current consumer energy education and outreach efforts, TEP is currently working to implement a new online marketplace that will help TEP customers select the most energy efficient products when they are shopping. The site will provide a convenient, user-friendly interface that uses simple customer education about energy costs to inform customers about the most efficient purchase options when they are looking for home energy appliances, equipment, and devices. In cases where TEP rebates are available, customers can easily access these rebates at the time of purchase. The marketplace will also serve as a communications channel for TEP to promote other energy efficiency products, services, and rebates that are available. The Company intends to include any energy savings associated with these measures in the reporting for the DSM program through which the measure has been approved.

12. Estimated annual costs and budget

The estimated annual Program costs and budget for 2021 are shown in Table 3. The estimated annual budget and costs for the Program are shown in Appendix B, Table B-5.

13. Implementation schedule

TEP plans to implement any proposed changes to the program after receiving the Commission's approval.

14. Description of the plan for MER

The MER plan is consistent with the strategy previously approved by the Commission.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all the information it believes is necessary for consideration of the tariff filing for this Program.

Utility Improvement

The following section includes a summary of TEP's Utility Improvement Programs.

K. Conservation Voltage Reduction (Existing Program)

TEP intends to continue implementing the Conservation Voltage Reduction program without the use of any DSM funding, and will continue to count savings toward the EE Standard if any new voltage reduction activities are implemented, as has been previously approved by the Commission in Decision No. 75450.

L. Generation Improvement and Facilities Upgrades (Existing Program)

TEP intends to continue implementing the Generation Improvement and Facilities Upgrade program without the use of any DSM funding, but will continue to count savings toward the EE Standard if any new generation improvements and facility upgrades are implemented in TEP's facilities, as has been previously approved by the Commission in Decision No. 75450.

III. Portfolio Management

TEP is requesting budget approval for portfolio management with modifications.

TEP serves as the program administrator for the DSM portfolio. TEP provides comprehensive program administrative, contract management, strategic planning, and program oversight functions including financial planning and budgeting. TEP has a dedicated team of DSM and Customer Solutions program staff that perform these functions for the Company.

M. Program Design, Implementation and Management

1. Program design

- Provide high-level guidance and direction to the ICs, including review and revision of proposed annual Implementation Plans and proposed milestones. The Company will additionally engage with the IC team and third-party evaluator on a regular basis when working through strategy and policy issues.
- Review and approve IC invoices and ensure program activities are within budget and on schedule.
- Review IC operational databases for accuracy, ensuring incorporation of data into TEP's comprehensive portfolio tracking database to be used for overall tracking and regulatory reporting along with the third-party evaluation.
- Review measure saving estimates maintained by the third-party evaluator and distributed to ICs.
- Oversee the coordination of evaluation, measurement, and verification of the third-party evaluator.
- Provide public education and outreach to community groups, trade allies, and trade associations.
- Continuously improve existing programs and processes to better serve our customers and increase efficiencies.
- Provide guidance and direction on new initiatives or strategies that may be proposed by the ICs or third-party evaluator.
- Communicate to ICs regarding the other TEP initiatives that may provide opportunities for cross-program promotion.
- Review and approve printed materials and advertising plans from ICs.
- Create and provide material for advertising on programs delivered by the utility.
- Evaluate portfolio and program effectiveness in conjunction with the third-party evaluator, and recommend modifications to programs and approach as needed.
- Perform periodic review of program metrics, conduct investment analysis, and review evolving program design.

2. Program implementation and management

In order to learn from and leverage positive experiences from other jurisdictions, TEP implements programs through a combination of third-party ICs and utility staff. TEP designs programs to be as

cost-effective as possible, utilizing ICs to implement programs in cases where they provide the lowest cost per kWh saved. Similarly, TEP utilizes its staff to implement programs in cases where it is more cost effective. ICs are selected for delivery of programs through a competitive request for proposal process.

TEP provides high-level administrative, contract management, program design and marketing oversight of the selected ICs. A portfolio of this size and scope requires careful management and oversight.

Trade allies are essential to the effective implementation of many DSM programs. Trade allies are considered program partners and are kept informed on DSM portfolio updates. Open communication with trade allies about what is and is not working in the field is essential. To ensure effective two-way communication, the Company emphasizes coordination, meetings, and frequent communication with these key partners to advance program goals. A schedule of meetings, workshops, educational seminars, and other relevant events by program, along with clear and concise program descriptions are distributed to the trade allies at program kickoff meetings. Ongoing training and program updates are a key part of program delivery.

TEP staff take primary responsibility for general DSM education and awareness strategies and activities, including maintaining the Company's website, and distributing mass-market general education and efficiency awareness promotions.

N. Program Reporting Requirements

1. Tracking and reporting

TEP follows the requirements outlined in the Energy Efficiency rules has developed a comprehensive internal tracking and reporting system to record all key activities within the portfolio of programs. ICs are responsible for tracking and reporting DSM program activities to TEP and to the third-party evaluator. Both TEP and the third-party evaluator have automated processes in place to process the data. Results are compared to ensure accuracy. The system developed allows customized reporting to meet reporting requirements in an efficient, transparent, and accurate manner.

2. Proposed changes to reporting requirements

TEP is not requesting any changes to TEP reporting requirements at this time.

O. Program Marketing and Outreach Strategy

The marketing and outreach strategy for this portfolio of programs encourages participation among customers, key market players, and trade allies. The objective of the marketing and communications strategy is to make customers and key market actors aware of the Company's program offerings and benefits, and to influence their decision to use more energy efficient options making when purchasing or installing energy systems or equipment.

The specifics of the marketing strategy depend on the program and the demographics of the group being engaged. Depending on the target demographic, marketing will generally include a mix of broadcast, internet, print media, radio, direct contact, direct mail, bill inserts, or presentations. The program descriptions describe the proposed marketing approach for each program.

Additionally, TEP works with regional, state, and national programs and partners to optimize cooperative marketing programs and campaigns. Marketing efforts are designed to dovetail with other statewide or regional efficiency programs and campaigns, including those offered by UNS Electric and APS.

P. Midstream Adjustments

While this Plan presents detailed information on approach, DSM measures and proposed incentive levels, unforeseen changes in market conditions require regular review and revisions to portions of this Plan to reflect new information. As such, adjustments to these programs may be necessary. When the need for adjustments arises, the Company will update the Commission in a timely manner and give the Commission opportunity to provide input.

Q. Inter-Utility Coordination

1. Inter-utility coordination

TEP works with UNS Electric, APS, and other utilities to maximize the effectiveness of the programs; in particular, where gas and electric services overlap, regular communication and coordination will be necessary. This collaboration involves working together to identify savings opportunities, as well as providing consistent messaging and parallel programs to reduce confusion and difficulty for customers and trade allies. TEP intends to continue collaboration with others to provide cohesive marketing messages, as well as designing incentive programs, incentive forms and incentive levels that are easily transferable with adjacent utilities.

2. Leveraging other utility efficiency initiatives

Within Arizona, several entities and initiatives are promoting DSM including: the state government; Southwest Energy Efficiency Project ("SWEEP"); US Environmental Protection Agency and US DOE's Energy Star® brand; and federal tax credits. TEP along with the third-party evaluator and its ICs work diligently to remain aware and up-to-date, and to cooperate with efficiency efforts being directed at Arizona energy users. Wherever feasible, co-marketing efforts are employed in an attempt to send a clear and consistent message on the benefits of DSM and the resources available to help achieve it.

R. Lost Fixed Cost Recovery and Performance Incentives

In Decision No. 73912 (June 27, 2013), the Commission outlined the LFCR mechanism to allow TEP to recover lost fixed costs associated with the implementation of EE/DSM programs. The same Decision by the Commission defines Performance Incentives to be recovered linked to energy and demand savings generated by TEP's EE/DSM programs. A subset of EE/DSM programs offered by

TEP count towards LFCR and/or Performance Incentives. Table 8 summarizes TEP program applicability to LFCR and Performance Incentives based on TEP's current understanding of LFCR and Performance Incentive guidelines.

Table 5: Lost Fixed Cost Recovery and Performance Incentives Summary

Program	**LFCR (Yes/ No)**	**Performance Incentives (Yes / No)**
Residential Sector		
Efficient Products	Yes	Yes
Existing Homes	Yes	Yes
Low-Income Weatherization	Yes	Yes
Multi-Family	Yes	Yes
Residential New Construction	Yes	Yes
Shade Tree	Yes	Yes
Non-Residential Sector		
Commercial & Industrial (C&I) Comprehensive	Yes	Yes
Commercial & Industrial (C&I) Direct Load Control	No	Yes
Commercial Schools	Yes	Yes
Combined Heat and Power (CHP) Program Pilot	No	No
Behavioral Sector		
Behavioral Comprehensive	Yes	Yes
Home Energy Reports	Yes	Yes

Program	LFCR (Yes/ No)	Performance Incentives (Yes / No)
DSM Initiatives		
Load Management Pilot	No	Yes
Beneficial Electrification	No	No
Innovative Customer Solutions Framework	No	No
Support Sector		
Consumer Education and Outreach	N/A	N/A
Energy Codes and Standards Enhancement	No	No
Program Development, Analysis and Reporting Software	N/A	N/A
Utility Sector		
Conservation Voltage Reduction	No	No
Generation Improvements & Facility Upgrades	No	No

S. Waivers to Standard

In accordance with Decision No. 75975 (February 24, 2017), TEP has been working to increase the focus of its DSM portfolio on managing peak energy use and on-peak demand. As a result, TEP requests a waiver to pursuant to A.A.C. R-14-2-2404 (c) which will allow the Company to count all of the demand response and load management savings generated by customer DSM programs without being subjected to the 10% annual cap on these savings.

In 2019 (the most recent year of final results available) TEP achieved cumulative savings of 1,566,806 MWh, which represents 18.74% cumulative annual energy savings as a percent of retail sales, compared to the annual EE Standard of 19.5% for 2019 as set forth in A.A.C. R14-2-2404(B). By the end of 2020, the Company forecasts it will have achieved an estimated 1,822,239 MWh in cumulative savings for 22.35% of adjusted retail sales, and the Company anticipates that by the end of 2021 it will achieve total cumulative savings of 1,960,610 MWh, which represents 24.91% of adjusted retail sales. The Company is still,

however, requesting a waiver herein pursuant to A.A.C. R14-2-2419 from the cumulative EE Standards set forth in A.A.C. R14-2-2404(B)[4].

[4] The Commission approved such a waiver for TEP in Decision No. 77085 (February 20, 2019).

APPENDICES

Appendix A. Proposed Measure Data

Table A-1: Estimated Customer Participation for Proposed Measures

Program	Measure	Estimated Customer Participation	Units
Existing Homes	Custom HVAC	1	Per HVAC Unit
Multi-Family	Custom Whole Building	1,618	Per Building
Beneficial Electrification Pilot Program	Fork Lift	4	Per Forklift
	Transportation Refrigeration Units	6	Per Refrigeration Unit
	Truck Stop Electrification	6	Per Electrification Unit
	Belt Loader	4	Per Loader
	Pushback	1	Per Pushback
	Tow Tug	2	Per Tug
	Induction Cooktop	25	Per Cooktop
Innovative Customer Solutions Framework	Initiative	1	NA
Load Management Pilot Program	C&I Electric Batteries	1	Per Battery
	C&I Thermal Storage	1	Per Thermal Storage Unit
	Connected Heat Pump Water Heaters	10	Per Water Heater
	Connected Pool Pump Controller	234	Per Controller
	Connected Water Heater Controller	386	Per Controller
	Residential Electric Batteries	4	Per Battery
	Residential HVAC Thermal Storage	1	Per Thermal Storage Unit
	TOU Optimized Smart Thermostats	328	Per Thermostat

Table A-2: Estimate of Baseline for Proposed Measures

Program	Measure	Base Efficiency Description	Improved Efficiency Description	Avoided Costs	Annual Energy Savings at Generator (kWh)	Coincident Peak Demand Savings at Generator (kW)	Cost per First Year kWh Saved ($/kWh)	Cost per Lifetime kWh Saved ($/kWh)
Existing Homes	Custom HVAC	SEER 14	Various	$2,600	3,597.77	2.64	$0.547	$0.032
Multi-Family	Custom Whole Building	Various	Various	$1,273,136	2,146,419.76	1,336.40	$0.000	$0.000
Beneficial Electrification Pilot Program	Fork Lift	Gasoline Fork Lift	Electric Forklift	NA	NA	NA	NA	NA
	Transportation Refrigeration Units	Diesel Refrigeration	Electric Refrigeration	NA	NA	NA	NA	NA
	Truck Stop Electrification	Diesel	Electric	NA	NA	NA	NA	NA
	Belt Loader	Gasoline Belt Loader	Electric Belt Loader	NA	NA	NA	NA	NA
	Pushback	Gasoline Pushback	Electric Pushback	NA	NA	NA	NA	NA
	Tow Tug	Gasoline Tow Tug	Electric Tow Tug	NA	NA	NA	NA	NA
	Induction Cooktop	Electric Resistant Stove	Induction Stove	NA	NA	0.21	NA	NA
Innovative Customer Solutions Framework	Initiative	No Action	Initiative	NA	NA	NA	NA	NA
Load Management Pilot Program	C&I Electric Batteries	No Battery	Battery installed	NA	NA	33.23	NA	NA
	C&I Thermal Storage	No thermal storage	Thermal storage added	NA	NA	0.32	NA	NA
	Connected Heat Pump Water Heaters	Standard WH	Connected HPWH	NA	NA	1.52	NA	NA
	Connected Pool Pump Controller	Standard Controller	Connected Controller	NA	NA	176.79	NA	NA
	Connected Water Heater Controller	Standard WH	Connected HPWH	NA	NA	62.54	NA	NA
	Residential Electric Batteries	No Action	Battery installed	NA	NA	9.11	NA	NA
	Residential HVAC Thermal Storage	No thermal storage	Thermal storage added	NA	NA	0.58	NA	NA
	TOU Optimized Smart Thermostats	Smart Thermostat	Optimization performed	NA	NA	184.17	NA	NA

Table A-3: Societal Benefits, Costs, and Cost-effectiveness for Proposed Measures

Program	Measure	Societal Benefits	Societal Costs	Societal Benefits to Cost Ratio
Existing Homes	Custom HVAC	$2,600.32	$2,405.58	1.08
Multi-Family	Custom Whole Building	$786.86	$710.78	1.11
Beneficial Electrification Pilot Program	Fork Lift	NA	NA	NA
	Transportation Refrigeration Units	NA	NA	NA
	Truck Stop Electrification	NA	NA	NA
	Belt Loader	NA	NA	NA
	Pushback	NA	NA	NA
	Tow Tug	NA	NA	NA
	Induction Cooktop	NA	NA	NA
Innovative Customer Solutions Framework	Initiative	NA	NA	NA
Load Management Pilot Program	C&I Electric Batteries	NA	NA	NA
	C&I Thermal Storage	NA	NA	NA
	Connected Heat Pump Water Heaters	NA	NA	NA
	Connected Pool Pump Controller	NA	NA	NA
	Connected Water Heater Controller	NA	NA	NA
	Residential Electric Batteries	NA	NA	NA
	Residential HVAC Thermal Storage	NA	NA	NA
	TOU Optimized Smart Thermostats	NA	NA	NA

Table A-4: Environmental Benefits for Proposed Measures

Program	Measure	Annual CO2 Savings (Metric Tons)	Annual NOx Savings (Metric Tons)	Annual SOx Savings (Metric Tons)	Lifetime CO2 Savings (Metric Tons)	Lifetime NOx Savings (Metric Tons)	Lifetime SOx Savings (Metric Tons)
Existing Homes	Custom HVAC	6,889.05	9.35	7.75	117,113.85	158.90	131.69
Multi-Family	Custom Whole Building	4,109,986.03	5,576.40	4,621.67	61,649,790.44	83,645.98	69,325.07
Beneficial Electrification Pilot Program	Fork Lift	NA	NA	NA	NA	NA	NA
	Transportation Refrigeration Units	NA	NA	NA	NA	NA	NA
	Truck Stop Electrification	NA	NA	NA	NA	NA	NA
	Belt Loader	NA	NA	NA	NA	NA	NA
	Pushback	NA	NA	NA	NA	NA	NA
	Tow Tug	NA	NA	NA	NA	NA	NA
	Induction Cooktop	NA	NA	NA	NA	NA	NA
Innovative Customer Solutions Framework	Initiative	NA	NA	NA	NA	NA	NA
Load Management Pilot Program	C&I Electric Batteries	NA	NA	NA	NA	NA	NA
	C&I Thermal Storage	NA	NA	NA	NA	NA	NA
	Connected Heat Pump Water Heaters	NA	NA	NA	NA	NA	NA
	Connected Pool Pump Controller	NA	NA	NA	NA	NA	NA
	Connected Water Heater Controller	NA	NA	NA	NA	NA	NA
	Residential Electric Batteries	NA	NA	NA	NA	NA	NA
	Residential HVAC Thermal Storage	NA	NA	NA	NA	NA	NA
	TOU Optimized Smart Thermostats	NA	NA	NA	NA	NA	NA

Table A-5: Costs and Budget for Proposed Measures

Program	Measure	Inc. Cost Incentives	Stipend/Other Incentives	Total Incentives	Non-Rebate Costs	Total Measure Costs
Existing Homes	Custom HVAC	$1,312.50	$0.00	$1,312.50	$655.58	$1,968.08
Multi-Family	Custom Whole Building	$476,120.29	$0.00	$476,120.29	$515,209.98	$991,330.27
Beneficial Electrification Pilot Program	Fork Lift	NA	NA	NA	NA	NA
	Transportation Refrigeration Units	NA	NA	NA	NA	NA
	Truck Stop Electrification	NA	NA	NA	NA	NA
	Belt Loader	NA	NA	NA	NA	NA
	Pushback	NA	NA	NA	NA	NA
	Tow Tug	NA	NA	NA	NA	NA
	Induction Cooktop	NA	NA	NA	NA	NA
Innovative Customer Solutions Framework	Initiative	NA	NA	NA	NA	NA
Load Management Pilot Program	C&I Electric Batteries	NA	NA	NA	NA	NA
	C&I Thermal Storage	NA	NA	NA	NA	NA
	Connected Heat Pump Water Heaters	NA	NA	NA	NA	NA
	Connected Pool Pump Controller	NA	NA	NA	NA	NA
	Connected Water Heater Controller	NA	NA	NA	NA	NA
	Residential Electric Batteries	NA	NA	NA	NA	NA
	Residential HVAC Thermal Storage	NA	NA	NA	NA	NA
	TOU Optimized Smart Thermostats	NA	NA	NA	NA	NA

Table A-6: Recommended Incentive with Min/Max Range for Proposed Measures

Program	Measure	Minimum Incentive	Recommended Incentive	Maximum Incentive
Existing Homes	Custom HVAC	$175.00	$1,312.50	$1,750.00
Multi-Family	Custom Whole Building	$39.24	$294.26	$392.35
Beneficial Electrification Pilot Program	Fork Lift	$1,250.00	$1,250.00	$1,250.00
	Transportation Refrigeration Units	$750.00	$750.00	$750.00
	Truck Stop Electrification	$750.00	$750.00	$750.00
	Belt Loader	$1,100.00	$1,100.00	$1,100.00
	Pushback	$5,000.00	$5,000.00	$5,000.00
	Tow Tug	$2,500.00	$2,500.00	$2,500.00
	Induction Cooktop	$200.00	$200.00	$200.00
Innovative Customer Solutions Framework	Initiative	$0.00	$0.00	$0.00
Load Management Pilot Program	C&I Electric Batteries	$12,500.00	$93,750.00	$125,000.00
	C&I Thermal Storage	$175.11	$1,313.33	$1,751.11
	Connected Heat Pump Water Heaters	$175.11	$1,313.34	$1,751.11
	Connected Pool Pump Controller	$21.40	$160.50	$214.00
	Connected Water Heater Controller	$13.00	$97.50	$130.00
	Residential Electric Batteries	$1,250.00	$9,375.00	$12,500.00
	Residential HVAC Thermal Storage	$199.26	$1,494.49	$1,992.65
	TOU Optimized Smart Thermostats	$15.28	$114.56	$152.75

Appendix B. Existing and Proposed Measure Data

Table B-1: Estimated Customer Participation for Existing and Proposed Measures

Program	Measure	Estimated Customer Participation	Units
Efficient Products	Advanced Power Strip	1	Per Strip
	EE Smart Thermostats	1	Per Thermostat
	Energy Star Appliance	2,200	Per Appliance
	Residential 15K LED Light	405,000	Per Lightbulb
	Residential 25K LED Light	200,000	Per Lightbulb
	Variable Speed Pool Pumps	400	Per Pool Pump
	Measure Totals	**607,602**	**NA**
Existing Homes	Advanced Tune-up	326	Per Tune-Up
	Custom HVAC	1	Per HVAC Unit
	DTR	89	Per Duct Test and Repair
	EE Smart Thermostats	1,124	Per Thermostat
	ER HVAC with QI	800	Per HVAC Unit
	Energy Star Heat Pump Water Heater	13	Per Water Heater
	HVAC with QI	600	Per HVAC Unit
	Measure Totals	**2,953**	**NA**
Low Income Weatherization	Weatherization	147	Per Lightbulb
	Measure Totals	**147**	**NA**
Multi-Family	Advanced Tune-up	2,000	Per Tune-Up
	Custom Whole Building	1,618	Per Building
	DTR	1,000	Per Duct Test and Repair
	EE Smart Thermostats	1	Per Thermostat
	ER HVAC with QI	1	Per HVAC Unit
	Faucet Aerator	1,373	Per Aerator
	HVAC with QI	3	Per HVAC Unit
	Low Flow Showerheads	754	Per Showerhead
	Residential 25K LED	8,780	Per Lightbulb
	Measure Totals	**15,530**	**NA**
Residential New Construction	ENERGY Smart Homes	1,900	Per Home
	ENERGY Smart Multi-Family	100	Per Home
	Measure Totals	**2,000**	**NA**
Shade Trees	Shade Tree	7,800	Per Tree
	Measure Totals	**7,800**	**NA**
C&I Comprehensive	Advanced Power Strips	17	Per Strip
	Air-Cooled Chillers	1	Per Chiller
	Anti-Sweat Heater Controls	259	Per Controller

Program	Measure	Estimated Customer Participation	Units
	CO Sensors	1	Per Sensor
	CO2 Sensors	17	Per Sensor
	Cogged V-Belt	1	Per Belt
	Commercial Kitchen Exhaust Fan	1	Per Fan
	Computer Power Monitoring System	1	Per System
	Custom Measure	134	Per Project
	Daylighting Controls	121	Per Controller
	Delamping	3,236	Per Delamp
	EMS-HVAC Delivery	184,011	Per Delivery System
	Economizers	3	Per Economizer
	Efficient Compressors	1	Per Compressor
	Efficient Condensers	1	Per Condensor
	Energy Efficient Exit Sign	66	Per Exit Sign
	Energy Efficient ODP Motors	1	Per Motor
	Energy Efficient TEFC Motors	1	Per Motor
	Evaporative Fan Controls	7	Per Controller
	Floating Head Pressure Controls	686	Per Controller
	Green Motor Rewind	1	Per Motor
	HIDs to T8/T5-Exterior	1	Per Lighting Fixture
	HIDs to T8/T5-Interior	1	Per Lighting Fixture
	HVAC System Test and Repair	14	Per Test and Repair
	Heat Pump Water Heaters	1	Per Water Heater
	High Efficiency EER Packaged and Split ACs	707	Per AC Unit
	High Efficiency EER Packaged and Split HPs	54	Per HP Unit
	High Efficiency Evaporator Fan Motors (ECM)	657	Per Fan Motor
	High Efficiency Reach-In Refrigerators and Freezers	1	Per Refrigerator/Freezer
	High Efficiency SEER Packaged and Split ACs	14	Per AC Unit
	High Efficiency SEER Packaged and Split HPs	45	Per HP Unit
	High Performance Glaze	1	Per Glaze
	Hotel Room HVAC Control	391	Per Controller
	Induction Lighting Indoor	1	Per Lighting Fixture
	Induction Lighting Outdoor	842	Per Lighting Fixture
	LED Indoor Lights	138,499	Per Lighting Fixture
	LED Outdoor Lighting	12,995	Per Lighting Fixture
	LED Traffic Lights	1	Per Lighting Fixture
	LED Tubes Indoor	1	Per Tube
	LED Tubes Outdoor	1	Per Tube
	LED Tubes Replacing Fluorescent Indoor	1	Per Tube
	LED Tubes Replacing Fluorescent Outdoor	1	Per Tube

Program	Measure	Estimated Customer Participation	Units
	Lab Fume Hoods	1	Per Hood
	Occupancy Sensors	66	Per Sensor
	PTAC	78	Per PTAC
	PTHP	106	Per PTHP
	Premium T8 Lighting	805	Per Lighting Fixture
	Programmable Thermostats	75	Per Thermostat
	Pulse Start Metal Halide Exterior	1	Per Halide
	Pulse Start Metal Halide Interior	1	Per Halide
	Reduced Lighting Power Density	9	Per Project
	Refrigerated Display Automatic Door Closers	1	Per Closer
	Refrigeration LED Strip Lighting	1,702	Per Strip
	Shade Screens	1	Per Screen
	Strip Curtain	157	Per Curtain
	VSD Air Compressors	1	Per Compressor
	VSD Automated Drain Trap Compressor	1	Per Compressor
	VSD Cycling Dryer Compressor	1	Per Compressor
	Variable Refrigerant Flow	1	Per Flow Unit
	Variable Speed Drive Motors	1	Per Motor
	Vending and Cooler Controls ("Vending Miser")	1	Per Controller
	Water-Cooled Chillers	1	Per Chiller
	Whole Building Performance	1	Per Building
	Window Films	1	Per Film
	Measure Totals	**345,808**	**NA**
Commercial DLC	C&I Demand Response	1	NA
	Measure Totals	**1**	**NA**
Commercial Schools	Commercial Schools	318	Per Project
	Measure Totals	**318**	**NA**
Conservation Voltage Reduction	Conservation Voltage Reduction	-	Per Project
	Measure Totals	**-**	**NA**
Behavioral Comprehensive	EE Smart Thermostats	1	Per Thermostat
	K-12 Education Kit	9,500	Per Kit
	K-12 Safety Kit	5,500	Per Kit
	Lighting Outreach Promotion	135,000	Per Kit
	Measure Totals	**150,001**	**NA**
Home Energy Reports	Home Energy Reports	25,366	Per Report
	Measure Totals	**25,366**	**NA**
Beneficial Electrification Pilot Program	Fork Lift	4	Per Forklift
	Transportation Refrigeration Units	6	Per Refrigeration Unit
	Truck Stop Electrification	6	Per Electrification Unit

Program	Measure	Estimated Customer Participation	Units
	Belt Loader	4	Per Loader
	Pushback	1	Per Pushback
	Tow Tug	2	Per Tug
	Induction Cooktop	25	Per Cooktop
	Measure Totals	**48**	**NA**
Innovative Customer Solutions Framework	Initiative	-	NA
	Measure Totals	**-**	**NA**
Load Management Pilot Program	C&I Electric Batteries	1	Per Battery
	C&I Thermal Storage	1	Per Thermal Storage Unit
	Connected Heat Pump Water Heaters	10	Per Water Heater
	Connected Pool Pump Controller	234	Per Controller
	Connected Water Heater Controller	386	Per Controller
	EE Smart Thermostats	1	Per Thermostat
	Residential Electric Batteries	4	Per Battery
	Residential HVAC Thermal Storage	1	Per Thermal Storage Unit
	TOU Optimized Smart Thermostats	328	Per Thermostat
	Measure Totals	**966**	**NA**
Education & Outreach	Consumer Education and Outreach	-	NA
	Online Marketplace	-	NA
	Measure Totals	**-**	**NA**
Energy Codes and Standards	Energy Codes and Standards	1	NA
	Measure Totals	**1**	**NA**
Generation Improvement & Facility Upgrades	Generation Improvement & Facility Upgrades	-	NA
	Measure Totals	**-**	**NA**
Research & Development	Program Development, Analysis and Reporting Software	-	NA
	Measure Totals	**-**	**NA**
EE Standard Allowed Credits	EE Standard Allowed Credits	-	NA
	Measure Totals	**-**	**NA**

Table B-2: Estimate of Baseline for Existing and Proposed Measures

Program	Measure	Base Efficiency Description	Improved Efficiency Description	Avoided Costs	Annual Energy Savings at Generator (kWh)	Coincident Peak Demand Savings at Generator (kW)	Cost per First Year kWh Saved ($/kWh)	Cost per Lifetime kWh Saved ($/kWh)
Efficient Products	Advanced Power Strip	Basic Strip	Advanced Strip	$20	92.46	0.01	$0.288	$0.024
	EE Smart Thermostats	Standard Thermostat	Smart Thermostat	$143	334.23	0.20	$0.200	$0.020
	Energy Star Appliance	Non Energy Star Unit	Energy Star Unit	$304,286	407,010.26	275.03	$0.000	$0.000
	Residential 15K LED Light	44.2 W Incd/Halogen	11.6 Weighted Avg W LED	$4,397,100	18,836,014.12	1,706.39	$0.000	$0.000
	Residential 25K LED Light	44.2 W Incd/Halogen	11.6 Weighted Avg W LED	$3,678,261	9,382,636.17	938.20	$0.000	$0.000
	Variable Speed Pool Pumps	Single speed baseline	Variable Spd Pool Pump	$213,292	801,676.61	168.24	$0.000	$0.000
	Measure Totals	**NA**	**NA**	**$8,593,102**	**29,427,763.85**	**2,738,629.77**	**NA**	**NA**
Existing Homes	Advanced Tune-up	No Action	Various Tune Ups	$68,715	147,634.16	114.55	$0.001	$0.000
	Custom HVAC	SEER 14	Various	$2,600	3,597.77	2.64	$0.547	$0.032
	DTR	No Action	Duct Test and Repair	$104,730	121,874.44	97.41	$0.006	$0.000
	EE Smart Thermostats	Standard Thermostat	Smart Thermostat	$160,904	375,670.77	226.04	$0.000	$0.000
	ER HVAC with QI	SEER 14	Weighted Average from 15-18 SEER	$1,921,424	2,517,385.59	1,848.30	$0.001	$0.000
	Energy Star Heat Pump Water Heater	Non Energy Star Unit	Energy Star Unit	$3,536	16,246.83	1.11	$0.051	$0.003
	HVAC with QI	SEER 14	Weighted Average from 15-18 SEER	$1,492,018	1,750,641.67	1,360.80	$0.001	$0.000
	Measure Totals	**NA**	**NA**	**$3,753,928**	**4,933,051.24**	**3,237,732.59**	**NA**	**NA**
Low Income Weatherization	Weatherization	No Action	Weatherization	$2,100,771	6,505,869.04	234.72	$0.001	$0.000
	Measure Totals	**NA**	**NA**	**$2,100,771**	**6,505,869.04**	**208,160.59**	**NA**	**NA**
Multi-Family	Advanced Tune-up	No Action	Various Tune Ups	$283,587	500,308.85	432.64	$0.000	$0.000
	Custom Whole Building	Various	Various	$1,273,136	2,146,419.76	1,336.40	$0.000	$0.000
	DTR	No Action	Duct Test and Repair	$683,369	863,075.01	605.55	$0.001	$0.000
	EE Smart Thermostats	Standard Thermostat	Smart Thermostat	$143	334.23	0.20	$0.411	$0.041
	ER HVAC with QI	SEER 14	Weighted Average from 15-18 SEER	$1,053	1,494.66	0.93	$0.624	$0.042

Program	Measure	Base Efficiency Description	Improved Efficiency Description	Avoided Costs	Annual Energy Savings at Generator (kWh)	Coincident Peak Demand Savings at Generator (kW)	Cost per First Year kWh Saved ($/kWh)	Cost per Lifetime kWh Saved ($/kWh)
	Faucet Aerator	2.2 GPM	0.5 GPM Bath and 1.5 GPM Kit	$61,474	80,262.48	5.49	$0.000	$0.000
	HVAC with QI	SEER 14	Weighted Average from 15-18 SEER	$4,635	4,227.47	3.66	$0.267	$0.011
	Low Flow Showerheads	4 GPM	1.5 GPM with hot water sensor	$54,769	117,892.74	8.06	$0.000	$0.000
	Residential 25K LED	44.2 W Incd/Halogen	11.6 Weighted Avg W LED	$120,023	357,132.28	29.88	$0.000	$0.000
	Measure Totals	**NA**	**NA**	**$2,482,190**	**4,071,147.49**	**2,148,639.34**	**NA**	**NA**
Residential New Construction	ENERGY Smart Homes	Standard Building	HERS <= 62	$4,399,875	4,750,871.46	3,129.07	$0.000	$0.000
	ENERGY Smart Multi-Family	Standard Building	HERS <= 60	$201,211	244,997.05	143.05	$0.004	$0.000
	Measure Totals	**NA**	**NA**	**$4,601,087**	**4,995,868.51**	**2,901,849.21**	**NA**	**NA**
Shade Trees	Shade Tree	No Tree	Shade Tree	$360,284	513,736.55	214.16	$0.000	$0.000
	Measure Totals	**NA**	**NA**	**$360,284**	**513,736.55**	**189,927.45**	**NA**	**NA**
C&I Comprehensive	Advanced Power Strips	Basic strip	Advanced Strip	$710	3,345.52	0.34	$0.008	$0.001
	Air-Cooled Chillers	1.28 kW/ton	1.12 kW/ton	$262	437.52	0.21	$0.102	$0.005
	Anti-Sweat Heater Controls	No Controls	Antisweat Controls	$12,945	54,958.08	7.95	$0.001	$0.000
	CO Sensors	No Sensors	Sensors	$9,950	31,292.79	15.19	$0.063	$0.008
	CO2 Sensors	No Sensors	Sensors	$18,667	37,380.71	18.14	$0.015	$0.001
	Cogged V-Belt	Standard Belt	Cogged V-Belt	$165,041	592,715.48	91.75	$0.062	$0.004
	Commercial Kitchen Exhaust Fan	Standard Fan	High Efficiency Fan	$15,673	56,286.09	8.71	$0.231	$0.015
	Computer Power Monitoring System	No power monitor	Computer power monitor	$28,102	75,324.47	36.49	$0.096	$0.010
	Custom Measure	Various	Various	$2,479,663	11,754,902.16	1,791.97	$0.001	$0.000
	Daylighting Controls	No Controls	Daylighting Controls	$67,912	253,804.36	33.24	$0.001	$0.000
	Delamping	Lighting Fixture	Fixture Removed	$164,282	580,038.62	75.97	$0.000	$0.000
	EMS-HVAC Delivery	No controls	EMS HVAC controls	$256,960	620,812.48	301.28	$0.000	$0.000
	Economizers	No Economizer	Economizer	$2,738	7,581.88	3.68	$0.053	$0.004
	Efficient Compressors	1.85 COP	2.2 COP	$595	2,181.67	0.30	$0.121	$0.008
	Efficient Condensers	No Condensers	Use of Condensers	$60	294.78	0.04	$0.098	$0.010

Program	Measure	Base Efficiency Description	Improved Efficiency Description	Avoided Costs	Annual Energy Savings at Generator (kWh)	Coincident Peak Demand Savings at Generator (kW)	Cost per First Year kWh Saved ($/kWh)	Cost per Lifetime kWh Saved ($/kWh)
	Energy Efficient Exit Sign	Incandescent/CFL sign	LED sign	$5,439	27,358.30	3.12	$0.002	$0.000
	Energy Efficient ODP Motors	88.7 % effy	89.2% effy	$257	925.27	0.14	$0.078	$0.005
	Energy Efficient TEFC Motors	89.3 % effy	89.8% effy	$218	785.07	0.12	$0.176	$0.012
	Evaporative Fan Controls	No Controls	Fan controls	$1,910	8,216.03	1.15	$0.023	$0.002
	Floating Head Pressure Controls	No Controls	Floating Head Pressure Controls	$387,918	1,421,927.14	198.18	$0.000	$0.000
	Green Motor Rewind	94.7% effy	95.2% Effy	$1,033	8,657.89	1.34	$0.101	$0.020
	HIDs to T8/T5-Exterior	565 W Metal Halide	263 W T5/T8s	$299	1,228.24	0.05	$0.114	$0.006
	HIDs to T8/T5-Interior	565 W Metal Halide	263 W T5/T8s	$271	1,290.67	0.17	$0.118	$0.010
	HVAC System Test and Repair	No Test and Repair	With Test and Repair	$20,533	36,073.18	16.83	$0.017	$0.003
	Heat Pump Water Heaters	EF = .86	EF = 2.35	$2,075	8,600.55	1.15	$0.142	$0.011
	High Efficiency EER Packaged and Split ACs	Inactive	Inactive	$3,136,472	4,381,594.27	2,126.42	$0.000	$0.000
	High Efficiency EER Packaged and Split HPs	Inactive	Inactive	$85,686	177,415.63	54.31	$0.003	$0.000
	High Efficiency Evaporator Fan Motors (ECM)	Shaded pole motor	EC motor	$241,740	756,182.53	105.39	$0.000	$0.000
	High Efficiency Reach-In Refrigerators and Freezers	Standard reach-in	EnergyStar Reach-in	$326	923.16	0.13	$0.128	$0.009
	High Efficiency SEER Packaged and Split ACs	SEER 14	Wtd Avg from 15-18 SEER	$11,410	18,507.23	8.98	$0.023	$0.001
	High Efficiency SEER Packaged and Split HPs	SEER 14	Wtd Avg from 15-18 SEER	$32,867	55,772.00	19.21	$0.005	$0.000
	High Performance Glaze	No Glaze Windows	High Glaze Windows	$1	1.75	0.00	$0.456	$0.023
	Hotel Room HVAC Control	Standard no-Sensor	Sensor Control	$101,611	388,505.49	135.45	$0.000	$0.000
	Induction Lighting Indoor	243 W Metal Halide or HPS wtd avg	96.2 W Induction lamp wtd avg	$279	868.55	0.11	$0.143	$0.007

Program	Measure	Base Efficiency Description	Improved Efficiency Description	Avoided Costs	Annual Energy Savings at Generator (kWh)	Coincident Peak Demand Savings at Generator (kW)	Cost per First Year kWh Saved ($/kWh)	Cost per Lifetime kWh Saved ($/kWh)
	Induction Lighting Outdoor	190 W Metal Halide or HPS	93.61 W Induction	$424,053	1,744,251.84	68.70	$0.000	$0.000
	LED Indoor Lights	Incandescent	Energy Star Certified LED	$19,805,341	13,932,130.98	1,773.99	$0.000	$0.000
	LED Outdoor Lighting	Incandescent	Energy Star Certified LED	$1,559,445	8,246,384.46	324.79	$0.000	$0.000
	LED Traffic Lights	Incandescent	Energy Star Certified LED	$80	531.02	0.06	$0.089	$0.013
	LED Tubes Indoor	34 W fluorescent wtd avg	15 W LED tube wtd avg	$32	136.88	0.02	$0.099	$0.008
	LED Tubes Outdoor	34 W fluorescent wtd avg	15 W LED tube wtd avg	$29	111.22	0.00	$0.140	$0.013
	LED Tubes Replacing Fluorescent Indoor	34 W fluorescent wtd avg	15 W LED tube wtd avg	$32	136.88	0.02	$0.099	$0.008
	LED Tubes Replacing Fluorescent Outdoor	34 W fluorescent wtd avg	15 W LED tube wtd avg	$27	157.55	0.01	$0.096	$0.009
	Lab Fume Hoods	Standard Fume Hood	High Efficiency Hood	$4,804	17,252.70	2.67	$0.085	$0.006
	Occupancy Sensors	No Controls	Occupancy Sensors	$12,211	54,721.37	7.15	$0.002	$0.000
	PTAC	10.2 EER Base Unit	11.2 EER Base Unit	$4,695	14,765.45	7.17	$0.004	$0.000
	PTHP	10 EER Base Unit	11.3 EER Base Unit	$6,174	27,072.05	9.00	$0.003	$0.000
	Premium T8 Lighting	T12 Lamps	Premium T8 Lamps	$8,511	33,654.86	4.41	$0.000	$0.000
	Programmable Thermostats	Non-programmable	Programmable	$34,097	252,211.08	67.47	$0.001	$0.000
	Pulse Start Metal Halide Exterior	565 Fixture Watts	394 Fixture Watts	$268	1,172.30	0.15	$0.125	$0.010
	Pulse Start Metal Halide Interior	472 Fixture Watts	329 Fixture Watts	$293	1,738.49	0.07	$0.102	$0.009
	Reduced Lighting Power Density	No LPD	Installed LPD	$5,397	23,796.09	3.12	$0.059	$0.005
	Refrigerated Display Automatic Door Closers	Standard Doors	Automatic Door Closers	$485	4,228.50	0.59	$0.048	$0.010
	Refrigeration LED Strip Lighting	32 W T-8	20 W LED	$183,772	914,673.19	173.33	$0.000	$0.000

Program	Measure	Base Efficiency Description	Improved Efficiency Description	Avoided Costs	Annual Energy Savings at Generator (kWh)	Coincident Peak Demand Savings at Generator (kW)	Cost per First Year kWh Saved ($/kWh)	Cost per Lifetime kWh Saved ($/kWh)
	Shade Screens	No screens	Shading coeff: 0.24	$7	17.05	0.01	$0.152	$0.015
	Strip Curtain	No curtains	Curtains	$7,800	84,654.65	11.80	$0.000	$0.000
	VSD Air Compressors	89.3 % effy	89.8% effy	$10,424	49,716.86	7.70	$0.113	$0.011
	VSD Automated Drain Trap Compressor	Standard condensate drains	No-loss condensate drains	$801	3,819.26	0.59	$0.123	$0.012
	VSD Cycling Dryer Compressor	Non-Cycling Dryer	Cycling Dryer	$1,522	6,018.85	0.93	$0.629	$0.048
	Variable Refrigerant Flow	Standard Refrigerant Flow	Variable Refrigerant Flow	$567	1,321.13	0.50	$0.890	$0.059
	Variable Speed Drive Motors	No VSD	VSD	$165,041	592,715.48	91.75	$0.062	$0.004
	Vending and Cooler Controls ("Vending Miser")	No Controls	Occupancy Sensors	$274	1,177.21	0.16	$0.112	$0.009
	Water-Cooled Chillers	0.84 kW/Ton	0.67 kW/Ton	$116	193.68	0.09	$0.289	$0.014
	Whole Building Performance	No Action	Whole Building Constructed	$105,440	175,905.60	85.37	$0.120	$0.006
	Window Films	No Film	Window Film	$4	8.84	0.00	$0.371	$0.025
	Measure Totals	**NA**	**NA**	**$29,595,647**	**47,550,865.09**	**6,827,888.14**	**NA**	**NA**
Commercial DLC	C&I Demand Response	No Action	Demand Response	NA	10,000,000.00	45,000.00	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**39,907,768.71**	**NA**	**NA**
Commercial Schools	Commercial Schools	Various	Various	$805,464	2,878,274.00	348.69	$0.001	$0.000
	Measure Totals	**NA**	**NA**	**$805,464**	**2,878,274.00**	**309,231.82**	**NA**	**NA**
Conservation Voltage Reduction	Conservation Voltage Reduction	No Action	Substation Voltage Adjustment	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Behavioral Comprehensive	EE Smart Thermostats	Standard Thermostat	Smart Thermostat	$143	334.23	0.20	$0.202	$0.020
	K-12 Education Kit	No Action	9W LEDs, Shower, Aerator, NiteLite	$672,705	1,714,285.79	129.44	$0.000	$0.000
	K-12 Safety Kit	No Action	9W LEDs, Shower, Aerator, NiteLite	$174,981	554,120.04	34.77	$0.000	$0.000

Program	Measure	Base Efficiency Description	Improved Efficiency Description	Avoided Costs	Annual Energy Savings at Generator (kWh)	Coincident Peak Demand Savings at Generator (kW)	Cost per First Year kWh Saved ($/kWh)	Cost per Lifetime kWh Saved ($/kWh)
	Lighting Outreach Promotion	No Action	9W LEDs	$1,809,808	5,713,409.10	459.50	$0.000	$0.000
	Measure Totals	**NA**	**NA**	**$2,657,637**	**7,982,149.17**	**553,309.45**	**NA**	**NA**
Home Energy Reports	Home Energy Reports	No Action	Behavioral actions from HER	$495,631	8,612,299.91	1,316.60	$0.000	$0.000
	Measure Totals	**NA**	**NA**	**$495,631**	**8,612,299.91**	**1,167,612.57**	**NA**	**NA**
Beneficial Electrification Pilot Program	Fork Lift	Gasoline Fork Lift	Electric Forklift	NA	NA	NA	NA	NA
	Transportation Refrigeration Units	Diesel Refrigeration	Electric Refrigeration	NA	NA	NA	NA	NA
	Truck Stop Electrification	Diesel	Electric	NA	NA	NA	NA	NA
	Belt Loader	Gasoline Belt Loader	Electric Belt Loader	NA	NA	NA	NA	NA
	Pushback	Gasoline Pushback	Electric Pushback	NA	NA	NA	NA	NA
	Tow Tug	Gasoline Tow Tug	Electric Tow Tug	NA	NA	NA	NA	NA
	Induction Cooktop	Electric Resistant Stove	Induction Stove	NA	NA	0.21	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Innovative Customer Solutions Framework	Initiative	No Action	Initiative	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Load Management Pilot Program	C&I Electric Batteries	No Battery	Battery installed	NA	NA	33.23	NA	NA
	C&I Thermal Storage	No thermal storage	Thermal storage added	NA	NA	0.32	NA	NA
	Connected Heat Pump Water Heaters	Standard WH	Connected HPWH	NA	NA	1.52	NA	NA
	Connected Pool Pump Controller	Standard Controller	Connected Controller	NA	NA	176.79	NA	NA
	Connected Water Heater Controller	Standard WH	Connected HPWH	NA	NA	62.54	NA	NA
	EE Smart Thermostats	Standard Thermostat	Smart Thermostat	NA	NA	0.21	NA	NA
	Residential Electric Batteries	No Action	Battery installed	NA	NA	9.11	NA	NA
	Residential HVAC Thermal Storage	No thermal storage	Thermal storage added	NA	NA	0.58	NA	NA
	TOU Optimized Smart Thermostats	Smart Thermostat	Optimization performed	NA	NA	184.17	NA	NA

Program	Measure	Base Efficiency Description	Improved Efficiency Description	Avoided Costs	Annual Energy Savings at Generator (kWh)	Coincident Peak Demand Savings at Generator (kW)	Cost per First Year kWh Saved ($/kWh)	Cost per Lifetime kWh Saved ($/kWh)
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**415,438.18**	**NA**	**NA**
Education & Outreach	Consumer Education and Outreach	NA	NA	NA	NA	NA	NA	NA
	Online Marketplace	NA	NA	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Energy Codes and Standards	Energy Codes and Standards	NA	NA	NA	10,900,000.00	1,040.00	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Generation Improvement & Facility Upgrades	Generation Improvement & Facility Upgrades	Various	Various	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Research & Development	Program Development, Analysis and Reporting Software	NA	NA	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
EE Standard Allowed Credits	EE Standard Allowed Credits	NA	NA	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Table B-3: Societal Benefits, Costs, and Cost-effectiveness for Existing and Proposed Measures

Program	Measure	Societal Benefits	Societal Costs	Societal Benefits to Cost Ratio
Efficient Products	Advanced Power Strip	$19.62	$34.68	0.57
	EE Smart Thermostats	$143.15	$86.05	1.66
	Energy Star Appliance	$138.31	$116.16	1.19
	Residential 15K LED Light	$10.86	$8.01	1.35
	Residential 25K LED Light	$18.39	$7.84	2.34
	Variable Speed Pool Pumps	$533.23	$455.64	1.17
	Measure Totals	**$14.14**	**$8.64**	1.64
Existing Homes	Advanced Tune-up	$210.78	$182.25	1.16
	Custom HVAC	$2,600.32	$2,405.58	1.08
	DTR	$1,176.75	$869.21	1.35
	EE Smart Thermostats	$143.15	$137.28	1.04
	ER HVAC with QI	$2,401.78	$2,195.27	1.09
	Energy Star Heat Pump Water Heater	$272.02	$1,038.73	0.26
	HVAC with QI	$2,486.70	$2,022.63	1.23
	Measure Totals	**$1,271.23**	**$1,109.64**	1.15
Low Income Weatherization	Weatherization	$14,290.96	$6,856.91	2.08
	Measure Totals	**$14,290.96**	**$6,856.91**	2.08
Multi-Family	Advanced Tune-up	$141.79	$150.05	0.95
	Custom Whole Building	$786.86	$710.78	1.11
	DTR	$683.37	$537.17	1.27
	EE Smart Thermostats	$143.15	$156.60	0.91
	ER HVAC with QI	$1,052.77	$1,124.32	0.94
	Faucet Aerator	$44.77	$16.13	2.78
	HVAC with QI	$1,545.06	$1,392.54	1.11
	Low Flow Showerheads	$72.64	$41.59	1.75
	Residential 25K LED	$13.67	$11.95	1.14
	Measure Totals	**$159.83**	**$138.52**	1.15
Residential New Construction	ENERGY Smart Homes	$2,315.72	$1,757.15	1.32
	ENERGY Smart Multi-Family	$2,012.11	$1,755.33	1.15
	Measure Totals	**$2,300.54**	**$1,757.06**	1.31
Shade Trees	Shade Tree	$46.19	$43.13	1.07
	Measure Totals	**$46.19**	**$43.13**	1.07
C&I Comprehensive	Advanced Power Strips	$41.75	$32.19	1.30
	Air-Cooled Chillers	$262.26	$75.54	3.47
	Anti-Sweat Heater Controls	$49.98	$96.49	0.52
	CO Sensors	$9,950.07	$2,976.76	3.34
	CO2 Sensors	$1,098.05	$1,018.63	1.08

Program	Measure	Societal Benefits	Societal Costs	Societal Benefits to Cost Ratio
	Cogged V-Belt	$165,040.61	$54,701.62	3.02
	Commercial Kitchen Exhaust Fan	$15,672.76	$24,226.74	0.65
	Computer Power Monitoring System	$28,101.93	$12,137.01	2.32
	Custom Measure	$18,504.94	$14,836.37	1.25
	Daylighting Controls	$561.25	$534.69	1.05
	Delamping	$50.77	$29.63	1.71
	EMS-HVAC Delivery	$1.40	$1.66	0.84
	Economizers	$912.51	$718.89	1.27
	Efficient Compressors	$595.18	$460.16	1.29
	Efficient Condensers	$59.97	$48.67	1.23
	Energy Efficient Exit Sign	$82.41	$118.94	0.69
	Energy Efficient ODP Motors	$257.50	$115.33	2.23
	Energy Efficient TEFC Motors	$218.48	$251.37	0.87
	Evaporative Fan Controls	$272.92	$344.38	0.79
	Floating Head Pressure Controls	$565.48	$157.65	3.59
	Green Motor Rewind	$1,032.94	$1,480.57	0.70
	HIDs to T8/T5-Exterior	$298.60	$241.83	1.23
	HIDs to T8/T5-Interior	$271.02	$264.23	1.03
	HVAC System Test and Repair	$1,466.62	$1,140.15	1.29
	Heat Pump Water Heaters	$2,075.19	$2,178.45	0.95
	High Efficiency EER Packaged and Split ACs	$4,436.31	$2,427.71	1.83
	High Efficiency EER Packaged and Split HPs	$1,586.79	$965.65	1.64
	High Efficiency Evaporator Fan Motors (ECM)	$367.95	$222.46	1.65
	High Efficiency Reach-In Refrigerators and Freezers	$326.13	$207.63	1.57
	High Efficiency SEER Packaged and Split ACs	$814.99	$792.78	1.03
	High Efficiency SEER Packaged and Split HPs	$730.38	$536.61	1.36
	High Performance Glaze	$1.02	$1.05	0.97
	Hotel Room HVAC Control	$259.87	$210.17	1.24
	Induction Lighting Indoor	$278.94	$220.54	1.26
	Induction Lighting Outdoor	$503.63	$307.36	1.64
	LED Indoor Lights	$143.00	$21.53	6.64
	LED Outdoor Lighting	$120.00	$111.38	1.08
	LED Traffic Lights	$80.38	$77.98	1.03
	LED Tubes Indoor	$31.93	$22.75	1.40
	LED Tubes Outdoor	$28.65	$27.64	1.04
	LED Tubes Replacing Fluorescent Indoor	$31.93	$22.75	1.40
	LED Tubes Replacing Fluorescent Outdoor	$26.55	$25.44	1.04
	Lab Fume Hoods	$4,803.98	$2,399.89	2.00
	Occupancy Sensors	$185.02	$173.81	1.06

Program	Measure	Societal Benefits	Societal Costs	Societal Benefits to Cost Ratio
	PTAC	$60.19	$110.78	0.54
	PTHP	$58.24	$135.79	0.43
	Premium T8 Lighting	$10.57	$25.66	0.41
	Programmable Thermostats	$454.63	$371.54	1.22
	Pulse Start Metal Halide Exterior	$268.31	$257.12	1.04
	Pulse Start Metal Halide Interior	$293.02	$300.87	0.97
	Reduced Lighting Power Density	$599.69	$1,844.56	0.33
	Refrigerated Display Automatic Door Closers	$484.62	$273.99	1.77
	Refrigeration LED Strip Lighting	$107.97	$55.21	1.96
	Shade Screens	$6.63	$4.66	1.42
	Strip Curtain	$49.68	$27.06	1.84
	VSD Air Compressors	$10,423.75	$9,665.34	1.08
	VSD Automated Drain Trap Compressor	$800.76	$819.21	0.98
	VSD Cycling Dryer Compressor	$1,522.25	$7,381.87	0.21
	Variable Refrigerant Flow	$566.96	$2,310.56	0.25
	Variable Speed Drive Motors	$165,040.61	$54,701.62	3.02
	Vending and Cooler Controls ("Vending Miser")	$273.73	$225.89	1.21
	Water-Cooled Chillers	$116.09	$105.72	1.10
	Whole Building Performance	$105,440.46	$26,290.63	4.01
	Window Films	$4.41	$6.28	0.70
	Measure Totals	**$85.58**	**$28.21**	3.03
Commercial DLC	C&I Demand Response	NA	NA	NA
	Measure Totals	**NA**	**NA**	NA
Commercial Schools	Commercial Schools	$2,532.90	$3,151.44	0.80
	Measure Totals	**$2,532.90**	**$3,151.44**	0.80
Conservation Voltage Reduction	Conservation Voltage Reduction	NA	NA	NA
	Measure Totals	**NA**	**NA**	NA
Behavioral Comprehensive	EE Smart Thermostats	$143.15	$86.66	1.65
	K-12 Education Kit	$70.81	$19.88	3.56
	K-12 Safety Kit	$31.81	$9.44	3.37
	Lighting Outreach Promotion	$13.41	$3.49	3.84
	Measure Totals	**$17.72**	**$4.75**	3.73
Home Energy Reports	Home Energy Reports	$19.54	$17.60	1.11
	Measure Totals	**$19.54**	**$17.60**	1.11
Beneficial Electrification Pilot Program	Fork Lift	NA	NA	NA
	Transportation Refrigeration Units	NA	NA	NA
	Truck Stop Electrification	NA	NA	NA
	Belt Loader	NA	NA	NA
	Pushback	NA	NA	NA

Program	Measure	Societal Benefits	Societal Costs	Societal Benefits to Cost Ratio
	Tow Tug	NA	NA	NA
	Induction Cooktop	NA	NA	NA
	Measure Totals	NA	NA	NA
Innovative Customer Solutions Framework	Initiative	NA	NA	NA
	Measure Totals	**NA**	**NA**	NA
Load Management Pilot Program	C&I Electric Batteries	NA	NA	NA
	C&I Thermal Storage	NA	NA	NA
	Connected Heat Pump Water Heaters	NA	NA	NA
	Connected Pool Pump Controller	NA	NA	NA
	Connected Water Heater Controller	NA	NA	NA
	EE Smart Thermostats	NA	NA	NA
	Residential Electric Batteries	NA	NA	NA
	Residential HVAC Thermal Storage	NA	NA	NA
	TOU Optimized Smart Thermostats	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**
Education & Outreach	Consumer Education and Outreach	NA	NA	NA
	Online Marketplace	NA	NA	NA
	Measure Totals	**NA**	**NA**	NA
Energy Codes and Standards	Energy Codes and Standards	NA	NA	NA
	Measure Totals	**NA**	**NA**	NA
Generation Improvement & Facility Upgrades	Generation Improvement & Facility Upgrades	NA	NA	NA
	Measure Totals	**NA**	**NA**	NA
Research & Development	Program Development, Analysis and Reporting Software	NA	NA	NA
	Measure Totals	**NA**	**NA**	NA
EE Standard Allowed Credits	EE Standard Allowed Credits	NA	NA	NA
	Measure Totals	**NA**	**NA**	NA

Table B-4: Environmental Benefits for Existing and Proposed Measures

Program	Measure	Annual CO2 Savings (Metric Tons)	Annual NOx Savings (Metric Tons)	Annual SOx Savings (Metric Tons)	Lifetime CO2 Savings (Metric Tons)	Lifetime NOx Savings (Metric Tons)	Lifetime SOx Savings (Metric Tons)
Efficient Products	Advanced Power Strip	177.05	0.24	0.20	2,124.59	2.88	2.39
	EE Smart Thermostats	639.98	0.87	0.72	6,399.81	8.68	7.20
	Energy Star Appliance	779,347.32	1,057.41	876.37	17,145,641.02	23,263.08	19,280.24
	Residential 15K LED Light	36,067,388.19	48,935.96	40,557.71	504,943,434.69	685,103.51	567,807.88
	Residential 25K LED Light	17,965,965.57	24,376.09	20,202.69	467,115,104.75	633,778.31	525,270.00
	Variable Speed Pool Pumps	1,535,058.38	2,082.76	1,726.17	18,420,700.58	24,993.07	20,714.04
	Measure Totals	**56,348,576.49**	**76,453.33**	**63,363.86**	**1,007,633,405.44**	**1,367,149.53**	**1,133,081.74**
Existing Homes	Advanced Tune-up	282,691.37	383.55	317.89	2,544,222.36	3,451.98	2,860.97
	Custom HVAC	6,889.05	9.35	7.75	117,113.85	158.90	131.69
	DTR	233,366.41	316.63	262.42	4,667,328.10	6,332.60	5,248.40
	EE Smart Thermostats	719,338.15	975.99	808.89	7,193,381.53	9,759.93	8,088.94
	ER HVAC with QI	4,820,315.10	6,540.17	5,420.43	81,945,356.73	111,182.85	92,147.39
	Energy Star Heat Pump Water Heater	31,109.59	42.21	34.98	466,643.87	633.14	524.74
	HVAC with QI	3,352,146.17	4,548.17	3,769.48	67,042,923.36	90,963.34	75,389.63
	Measure Totals	**9,445,855.84**	**12,816.07**	**10,621.85**	**163,976,969.80**	**222,482.74**	**184,391.77**
Low Income Weatherization	Weatherization	12,457,503.09	16,902.25	14,008.44	348,810,086.47	473,262.94	392,236.24
	Measure Totals	**12,457,503.09**	**16,902.25**	**14,008.44**	**348,810,086.47**	**473,262.94**	**392,236.24**
Multi-Family	Advanced Tune-up	957,996.39	1,299.80	1,077.27	9,579,963.92	12,998.02	10,772.65
	Custom Whole Building	4,109,986.03	5,576.40	4,621.67	61,649,790.44	83,645.98	69,325.07
	DTR	1,652,624.65	2,242.27	1,858.37	33,052,493.04	44,845.38	37,167.46
	EE Smart Thermostats	639.98	0.87	0.72	6,399.81	8.68	7.20
	ER HVAC with QI	2,861.99	3.88	3.22	42,929.91	58.25	48.27
	Faucet Aerator	153,687.41	208.52	172.82	1,536,874.06	2,085.22	1,728.21
	HVAC with QI	8,094.80	10.98	9.10	202,370.06	274.57	227.56
	Low Flow Showerheads	225,742.20	306.29	253.85	2,257,422.02	3,062.85	2,538.47
	Residential 25K LED	683,840.46	927.83	768.98	17,779,851.94	24,123.57	19,993.41
	Measure Totals	**7,795,473.92**	**10,576.84**	**8,765.99**	**126,108,095.21**	**171,102.53**	**141,808.30**
Residential New Construction	ENERGY Smart Homes	9,097,016.17	12,342.76	10,229.58	272,910,485.22	370,282.92	306,887.29
	ENERGY Smart Multi-Family	469,122.80	636.50	527.53	14,073,684.02	19,095.07	15,825.83
	Measure Totals	**9,566,138.97**	**12,979.27**	**10,757.10**	**286,984,169.24**	**389,377.99**	**322,713.12**
Shade Trees	Shade Tree	983,707.89	1,334.69	1,106.18	39,348,315.44	53,387.50	44,247.10
	Measure Totals	**983,707.89**	**1,334.69**	**1,106.18**	**39,348,315.44**	**53,387.50**	**44,247.10**
C&I Comprehensive	Advanced Power Strips	6,406.04	8.69	7.20	76,872.50	104.30	86.44
	Air-Cooled Chillers	837.77	1.14	0.94	16,755.31	22.73	18.84
	Anti-Sweat Heater Controls	105,234.27	142.78	118.34	1,262,811.28	1,713.37	1,420.03
	CO Sensors	59,919.76	81.30	67.38	479,358.04	650.39	539.04

Program	Measure	Annual CO2 Savings (Metric Tons)	Annual NOx Savings (Metric Tons)	Annual SOx Savings (Metric Tons)	Lifetime CO2 Savings (Metric Tons)	Lifetime NOx Savings (Metric Tons)	Lifetime SOx Savings (Metric Tons)
	CO2 Sensors	71,576.96	97.12	80.49	1,073,654.36	1,456.73	1,207.32
	Cogged V-Belt	1,134,937.53	1,539.87	1,276.23	17,024,062.91	23,098.12	19,143.52
	Commercial Kitchen Exhaust Fan	107,777.16	146.23	121.20	1,616,657.43	2,193.47	1,817.93
	Computer Power Monitoring System	144,232.04	195.69	162.19	1,442,320.43	1,956.93	1,621.89
	Custom Measure	22,508,404.21	30,539.24	25,310.66	225,084,042.14	305,392.36	253,106.55
	Daylighting Controls	485,987.13	659.38	546.49	7,289,807.01	9,890.76	8,197.37
	Delamping	1,110,663.75	1,506.94	1,248.94	18,881,283.81	25,617.99	21,231.97
	EMS-HVAC Delivery	1,188,737.95	1,612.87	1,336.73	17,831,069.30	24,193.06	20,051.00
	Economizers	14,517.85	19.70	16.33	217,767.81	295.47	244.88
	Efficient Compressors	4,177.48	5.67	4.70	62,662.21	85.02	70.46
	Efficient Condensers	564.44	0.77	0.63	5,644.39	7.66	6.35
	Energy Efficient Exit Sign	52,385.94	71.08	58.91	523,859.40	710.77	589.08
	Energy Efficient ODP Motors	1,771.71	2.40	1.99	26,575.66	36.06	29.88
	Energy Efficient TEFC Motors	1,503.26	2.04	1.69	22,548.86	30.59	25.36
	Evaporative Fan Controls	15,732.14	21.35	17.69	188,785.73	256.14	212.29
	Floating Head Pressure Controls	2,722,720.31	3,694.17	3,061.69	40,840,804.69	55,412.50	45,925.40
	Green Motor Rewind	16,578.22	22.49	18.64	82,891.09	112.47	93.21
	HIDs to T8/T5-Exterior	2,351.85	3.19	2.64	42,333.22	57.44	47.60
	HIDs to T8/T5-Interior	2,471.39	3.35	2.78	29,656.72	40.24	33.35
	HVAC System Test and Repair	69,073.28	93.72	77.67	414,439.68	562.31	466.04
	Heat Pump Water Heaters	16,468.41	22.34	18.52	214,089.37	290.47	240.74
	High Efficiency EER Packaged and Split ACs	8,389,920.53	11,383.38	9,434.45	234,917,774.91	318,734.69	264,164.57
	High Efficiency EER Packaged and Split HPs	339,717.22	460.93	382.01	7,473,778.91	10,140.37	8,404.25
	High Efficiency Evaporator Fan Motors (ECM)	1,447,945.86	1,964.56	1,628.21	21,719,187.95	29,468.43	24,423.18
	High Efficiency Reach-In Refrigerators and Freezers	1,767.68	2.40	1.99	26,515.17	35.98	29.82
	High Efficiency SEER Packaged and Split ACs	35,437.84	48.08	39.85	744,194.56	1,009.72	836.85
	High Efficiency SEER Packaged and Split HPs	106,792.79	144.90	120.09	2,242,648.53	3,042.81	2,521.85
	High Performance Glaze	3.36	0.00	0.00	67.19	0.09	0.08
	Hotel Room HVAC Control	743,914.19	1,009.34	836.53	5,951,313.50	8,074.70	6,692.24
	Induction Lighting Indoor	1,663.12	2.26	1.87	34,925.44	47.39	39.27
	Induction Lighting Outdoor	3,339,910.86	4,531.57	3,755.72	60,118,395.48	81,568.19	67,603.01
	LED Indoor Lights	26,677,383.72	36,195.68	29,998.66	346,805,988.31	470,543.79	389,982.64

Program	Measure	Annual CO2 Savings (Metric Tons)	Annual NOx Savings (Metric Tons)	Annual SOx Savings (Metric Tons)	Lifetime CO2 Savings (Metric Tons)	Lifetime NOx Savings (Metric Tons)	Lifetime SOx Savings (Metric Tons)
	LED Outdoor Lighting	15,790,259.42	21,424.11	17,756.12	157,902,594.25	214,241.07	177,561.15
	LED Traffic Lights	1,016.80	1.38	1.14	7,117.61	9.66	8.00
	LED Tubes Indoor	262.10	0.36	0.29	3,407.33	4.62	3.83
	LED Tubes Outdoor	212.97	0.29	0.24	2,342.70	3.18	2.63
	LED Tubes Replacing Fluorescent Indoor	262.10	0.36	0.29	3,407.33	4.62	3.83
	LED Tubes Replacing Fluorescent Outdoor	301.68	0.41	0.34	3,318.44	4.50	3.73
	Lab Fume Hoods	33,035.63	44.82	37.15	495,534.52	672.34	557.23
	Occupancy Sensors	104,781.03	142.17	117.83	1,257,372.36	1,705.99	1,413.91
	PTAC	28,273.04	38.36	31.79	226,184.29	306.89	254.34
	PTHP	51,837.83	70.33	58.29	414,702.60	562.67	466.33
	Premium T8 Lighting	64,442.66	87.44	72.47	902,197.24	1,224.09	1,014.52
	Programmable Thermostats	482,936.30	655.24	543.06	5,312,299.31	7,207.69	5,973.67
	Pulse Start Metal Halide Exterior	2,244.74	3.05	2.52	26,936.89	36.55	30.29
	Pulse Start Metal Halide Interior	3,328.88	4.52	3.74	36,617.63	49.68	41.18
	Reduced Lighting Power Density	45,564.99	61.82	51.24	546,779.87	741.87	614.85
	Refrigerated Display Automatic Door Closers	8,096.77	10.99	9.10	40,483.87	54.93	45.52
	Refrigeration LED Strip Lighting	1,751,425.37	2,376.32	1,969.47	15,762,828.37	21,386.89	17,725.27
	Shade Screens	32.64	0.04	0.04	326.42	0.44	0.37
	Strip Curtain	162,097.58	219.93	182.28	648,390.31	879.73	729.11
	VSD Air Compressors	95,198.34	129.16	107.05	951,983.39	1,291.64	1,070.50
	VSD Automated Drain Trap Compressor	7,313.16	9.92	8.22	73,131.62	99.22	82.24
	VSD Cycling Dryer Compressor	11,524.95	15.64	12.96	149,824.33	203.28	168.48
	Variable Refrigerant Flow	2,529.71	3.43	2.84	37,945.59	51.48	42.67
	Variable Speed Drive Motors	1,134,937.53	1,539.87	1,276.23	17,024,062.91	23,098.12	19,143.52
	Vending and Cooler Controls ("Vending Miser")	2,254.14	3.06	2.53	27,049.70	36.70	30.42
	Water-Cooled Chillers	370.86	0.50	0.42	7,417.22	10.06	8.34
	Whole Building Performance	336,825.80	457.00	378.76	6,736,516.04	9,140.05	7,575.20
	Window Films	16.92	0.02	0.02	253.86	0.34	0.29
	Measure Totals	**91,050,871.98**	**123,537.15**	**102,386.52**	**1,223,386,569.30**	**1,659,881.82**	**1,375,695.74**
Commercial DLC	C&I Demand Response	NA	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Commercial Schools	Commercial Schools	5,511,347.84	7,477.76	6,197.50	93,692,913.22	127,121.85	105,357.49
	Measure Totals	**5,511,347.84**	**7,477.76**	**6,197.50**	**93,692,913.22**	**127,121.85**	**105,357.49**

Program	Measure	Annual CO2 Savings (Metric Tons)	Annual NOx Savings (Metric Tons)	Annual SOx Savings (Metric Tons)	Lifetime CO2 Savings (Metric Tons)	Lifetime NOx Savings (Metric Tons)	Lifetime SOx Savings (Metric Tons)
Conservation Voltage Reduction	Conservation Voltage Reduction	NA	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Behavioral Comprehensive	EE Smart Thermostats	639.98	0.87	0.72	6,399.81	8.68	7.20
	K-12 Education Kit	3,282,531.58	4,453.71	3,691.20	75,498,226.25	102,435.43	84,897.60
	K-12 Safety Kit	1,061,034.60	1,439.60	1,193.13	22,281,726.61	30,231.68	25,055.76
	Lighting Outreach Promotion	10,940,092.89	14,843.44	12,302.11	262,562,229.31	356,242.48	295,250.70
	Measure Totals	**15,284,299.05**	**20,737.62**	**17,187.16**	**360,348,581.98**	**488,918.28**	**405,211.26**
Home Energy Reports	Home Energy Reports	16,490,918.00	22,374.76	18,544.00	49,472,753.99	67,124.27	55,632.01
	Measure Totals	**16,490,918.00**	**22,374.76**	**18,544.00**	**49,472,753.99**	**67,124.27**	**55,632.01**
Beneficial Electrification Pilot Program	Fork Lift	NA	NA	NA	NA	NA	NA
	Transportation Refrigeration Units	NA	NA	NA	NA	NA	NA
	Truck Stop Electrification	NA	NA	NA	NA	NA	NA
	Belt Loader	NA	NA	NA	NA	NA	NA
	Pushback	NA	NA	NA	NA	NA	NA
	Tow Tug	NA	NA	NA	NA	NA	NA
	Induction Cooktop	NA	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Innovative Customer Solutions Framework	Initiative	NA	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Load Management Pilot Program	C&I Electric Batteries	NA	NA	NA	NA	NA	NA
	C&I Thermal Storage	NA	NA	NA	NA	NA	NA
	Connected Heat Pump Water Heaters	NA	NA	NA	NA	NA	NA
	Connected Pool Pump Controller	NA	NA	NA	NA	NA	NA
	Connected Water Heater Controller	NA	NA	NA	NA	NA	NA
	EE Smart Thermostats	NA	NA	NA	NA	NA	NA
	Residential Electric Batteries	NA	NA	NA	NA	NA	NA
	Residential HVAC Thermal Storage	NA	NA	NA	NA	NA	NA
	TOU Optimized Smart Thermostats	NA	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Education & Outreach	Consumer Education and Outreach	NA	NA	NA	NA	NA	NA
	Online Marketplace	NA	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Energy Codes and Standards	Energy Codes and Standards	NA	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Generation Improvement & Facility Upgrades	Generation Improvement & Facility Upgrades	NA	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Program	Measure	Annual CO2 Savings (Metric Tons)	Annual NOx Savings (Metric Tons)	Annual SOx Savings (Metric Tons)	Lifetime CO2 Savings (Metric Tons)	Lifetime NOx Savings (Metric Tons)	Lifetime SOx Savings (Metric Tons)
Research & Development	Program Development, Analysis and Reporting Software	NA	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
EE Standard Allowed Credits	EE Standard Allowed Credits	NA	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Table B-5: Costs and Budget for Existing and Proposed Measures

Program	Measure	Inc. Cost Incentives	Stipend/Other Incentives	Total Incentives	Non-Rebate Costs	Total Measure Costs
Efficient Products	Advanced Power Strip	$24.00	$0.00	$24.00	$2.68	$26.68
	EE Smart Thermostats	$57.28	$0.00	$57.28	$9.67	$66.95
	Energy Star Appliance	$121,892.70	$0.00	$121,892.70	$11,777.37	$133,670.07
	Residential 15K LED Light	$540,082.88	$0.00	$540,082.88	$545,044.48	$1,085,127.36
	Residential 25K LED Light	$259,452.66	$0.00	$259,452.66	$271,498.74	$530,951.39
	Variable Speed Pool Pumps	$79,529.91	$16,000.00	$95,529.91	$23,197.55	$102,727.46
	Measure Totals	**$1,001,039.44**	**$16,000.00**	**$1,017,039.44**	**$851,530.48**	**$1,852,569.92**
Existing Homes	Advanced Tune-up	$24,384.47	$12,450.00	$36,834.47	$26,901.62	$51,286.09
	Custom HVAC	$1,312.50	$0.00	$1,312.50	$655.58	$1,968.08
	DTR	$41,363.92	$6,675.00	$48,038.92	$22,207.73	$63,571.65
	EE Smart Thermostats	$64,384.74	$0.00	$64,384.74	$68,454.01	$132,838.75
	ER HVAC with QI	$973,127.17	$60,000.00	$1,033,127.17	$458,713.19	$1,431,840.36
	Energy Star Heat Pump Water Heater	$7,907.25	$0.00	$7,907.25	$2,960.47	$10,867.72
	HVAC with QI	$670,936.38	$45,000.00	$715,936.38	$318,998.58	$989,934.96
	Measure Totals	**$1,783,416.45**	**$124,125.00**	**$1,907,541.45**	**$898,891.17**	**$2,682,307.61**
Low Income Weatherization	Weatherization	$714,876.14	$0.00	$714,876.14	$293,089.40	$1,007,965.54
	Measure Totals	**$714,876.14**	**$0.00**	**$714,876.14**	**$293,089.40**	**$1,007,965.54**
Multi-Family	Advanced Tune-up	$135,000.00	$43,195.49	$178,195.49	$120,090.26	$255,090.26
	Custom Whole Building	$476,120.29	$0.00	$476,120.29	$515,209.98	$991,330.27
	DTR	$247,500.00	$75,000.00	$322,500.00	$207,165.84	$454,665.84
	EE Smart Thermostats	$57.28	$0.00	$57.28	$80.23	$137.51
	ER HVAC with QI	$574.16	$0.00	$574.16	$358.77	$932.93
	Faucet Aerator	$2,162.48	$0.00	$2,162.48	$19,265.59	$21,428.06
	HVAC with QI	$2,372.16	$225.00	$2,597.16	$1,014.73	$3,386.89
	Low Flow Showerheads	$2,295.93	$0.00	$2,295.93	$28,298.06	$30,593.99
	Residential 25K LED	$14,421.15	$0.00	$14,421.15	$85,723.27	$100,144.42
	Measure Totals	**$880,503.45**	**$118,420.49**	**$998,923.95**	**$977,206.72**	**$1,857,710.17**
Residential New Construction	ENERGY Smart Homes	$791,887.41	$0.00	$791,887.41	$171,031.37	$962,918.78
	ENERGY Smart Multi-Family	$83,356.57	$0.00	$83,356.57	$8,819.89	$92,176.46
	Measure Totals	**$875,243.98**	**$0.00**	**$875,243.98**	**$179,851.27**	**$1,055,095.24**
Shade Trees	Shade Tree	$166,414.09	$0.00	$166,414.09	$3,549.92	$169,964.01
	Measure Totals	**$166,414.09**	**$0.00**	**$166,414.09**	**$3,549.92**	**$169,964.01**
C&I Comprehensive	Advanced Power Strips	$332.08	$0.00	$332.08	$104.43	$436.50
	Air-Cooled Chillers	$30.94	$0.00	$30.94	$13.66	$44.60
	Anti-Sweat Heater Controls	$11,637.27	$0.00	$11,637.27	$1,715.43	$13,352.71
	CO Sensors	$1,000.00	$0.00	$1,000.00	$976.76	$1,976.76
	CO2 Sensors	$8,075.00	$0.00	$8,075.00	$1,166.78	$9,241.78

Program	Measure	Inc. Cost Incentives	Stipend/Other Incentives	Total Incentives	Non-Rebate Costs	Total Measure Costs
	Cogged V-Belt	$18,100.44	$0.00	$18,100.44	$18,500.74	$36,601.18
	Commercial Kitchen Exhaust Fan	$11,234.93	$0.00	$11,234.93	$1,756.89	$12,991.82
	Computer Power Monitoring System	$4,892.93	$0.00	$4,892.93	$2,351.14	$7,244.08
	Custom Measure	$774,794.48	$0.00	$774,794.48	$366,911.85	$1,141,706.33
	Daylighting Controls	$28,387.54	$0.00	$28,387.54	$7,922.13	$36,309.66
	Delamping	$38,882.56	$332.75	$39,215.31	$18,105.05	$56,987.61
	EMS-HVAC Delivery	$142,584.55	$0.00	$142,584.55	$19,377.74	$161,962.29
	Economizers	$960.00	$0.00	$960.00	$236.66	$1,196.66
	Efficient Compressors	$196.03	$0.00	$196.03	$68.10	$264.13
	Efficient Condensers	$19.74	$0.00	$19.74	$9.20	$28.94
	Energy Efficient Exit Sign	$3,497.94	$6.79	$3,504.72	$853.95	$4,351.89
	Energy Efficient ODP Motors	$43.22	$0.00	$43.22	$28.88	$72.11
	Energy Efficient TEFC Motors	$113.43	$0.00	$113.43	$24.50	$137.94
	Evaporative Fan Controls	$1,077.09	$0.00	$1,077.09	$256.45	$1,333.54
	Floating Head Pressure Controls	$31,882.83	$0.00	$31,882.83	$44,383.35	$76,266.18
	Green Motor Rewind	$605.16	$0.00	$605.16	$270.24	$875.41
	HIDs to T8/T5-Exterior	$101.75	$0.00	$101.75	$38.34	$140.08
	HIDs to T8/T5-Interior	$111.97	$0.00	$111.97	$40.29	$152.26
	HVAC System Test and Repair	$7,418.06	$0.00	$7,418.06	$1,125.97	$8,544.03
	Heat Pump Water Heaters	$955.00	$0.00	$955.00	$268.45	$1,223.45
	High Efficiency EER Packaged and Split ACs	$789,812.54	$0.00	$789,812.54	$136,764.97	$926,577.52
	High Efficiency EER Packaged and Split HPs	$23,303.54	$0.00	$23,303.54	$5,537.77	$28,841.30
	High Efficiency Evaporator Fan Motors (ECM)	$61,276.99	$0.00	$61,276.99	$23,603.12	$84,880.10
	High Efficiency Reach-In Refrigerators and Freezers	$89.41	$0.00	$89.41	$28.82	$118.22
	High Efficiency SEER Packaged and Split ACs	$5,260.59	$0.00	$5,260.59	$577.68	$5,838.27
	High Efficiency SEER Packaged and Split HPs	$11,203.36	$0.00	$11,203.36	$1,740.84	$12,944.20
	High Performance Glaze	$0.75	$0.00	$0.75	$0.05	$0.80
	Hotel Room HVAC Control	$35,024.11	$0.00	$35,024.11	$12,126.62	$47,150.73
	Induction Lighting Indoor	$96.71	$0.00	$96.71	$27.11	$123.83
	Induction Lighting Outdoor	$102,176.71	$0.00	$102,176.71	$54,444.24	$156,620.95
	LED Indoor Lights	$1,273,227.49	$14,241.45	$1,287,468.94	$434,870.82	$1,708,098.31
	LED Outdoor Lighting	$595,017.36	$1,336.24	$596,353.60	$257,398.67	$852,416.04
	LED Traffic Lights	$30.70	$0.00	$30.70	$16.57	$47.28
	LED Tubes Indoor	$9.24	$0.00	$9.24	$4.27	$13.51
	LED Tubes Outdoor	$12.08	$0.00	$12.08	$3.47	$15.55
	LED Tubes Replacing Fluorescent Indoor	$9.24	$0.00	$9.24	$4.27	$13.51
	LED Tubes Replacing Fluorescent Outdoor	$10.26	$0.00	$10.26	$4.92	$15.18
	Lab Fume Hoods	$930.69	$0.00	$930.69	$538.52	$1,469.20

Program	Measure	Inc. Cost Incentives	Stipend/Other Incentives	Total Incentives	Non-Rebate Costs	Total Measure Costs
	Occupancy Sensors	$4,881.70	$0.00	$4,881.70	$1,708.05	$6,589.75
	PTAC	$4,090.16	$0.00	$4,090.16	$460.88	$4,551.04
	PTHP	$6,774.33	$0.00	$6,774.33	$845.01	$7,619.34
	Premium T8 Lighting	$9,801.22	$82.78	$9,883.99	$1,050.49	$10,851.71
	Programmable Thermostats	$9,996.54	$0.00	$9,996.54	$7,872.40	$17,868.94
	Pulse Start Metal Halide Exterior	$110.26	$0.00	$110.26	$36.59	$146.86
	Pulse Start Metal Halide Interior	$123.31	$0.00	$123.31	$54.26	$177.57
	Reduced Lighting Power Density	$11,893.69	$0.00	$11,893.69	$742.76	$12,636.45
	Refrigerated Display Automatic Door Closers	$71.00	$0.00	$71.00	$131.99	$202.99
	Refrigeration LED Strip Lighting	$32,708.08	$0.00	$32,708.08	$28,550.17	$61,258.25
	Shade Screens	$2.06	$0.00	$2.06	$0.53	$2.59
	Strip Curtain	$802.65	$0.00	$802.65	$2,642.37	$3,445.02
	VSD Air Compressors	$4,056.75	$0.00	$4,056.75	$1,551.84	$5,608.59
	VSD Automated Drain Trap Compressor	$350.00	$0.00	$350.00	$119.21	$469.21
	VSD Cycling Dryer Compressor	$3,597.00	$0.00	$3,597.00	$187.87	$3,784.87
	Variable Refrigerant Flow	$1,134.66	$0.00	$1,134.66	$41.24	$1,175.90
	Variable Speed Drive Motors	$18,100.44	$0.00	$18,100.44	$18,500.74	$36,601.18
	Vending and Cooler Controls ("Vending Miser")	$94.57	$0.00	$94.57	$36.75	$131.32
	Water-Cooled Chillers	$49.84	$0.00	$49.84	$6.05	$55.88
	Whole Building Performance	$15,600.00	$0.00	$15,600.00	$5,490.63	$21,090.63
	Window Films	$3.00	$0.00	$3.00	$0.28	$3.28
	Measure Totals	**$4,108,667.99**	**$16,000.00**	**$4,124,667.99**	**$1,484,229.79**	**$5,592,897.78**
Commercial DLC	C&I Demand Response	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**
Commercial Schools	Commercial Schools	$850,788.96	$0.00	$850,788.96	$151,368.43	$1,002,157.39
	Measure Totals	**$850,788.96**	**$0.00**	**$850,788.96**	**$151,368.43**	**$1,002,157.39**
Conservation Voltage Reduction	Conservation Voltage Reduction	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**
Behavioral Comprehensive	EE Smart Thermostats	$57.28	$0.00	$57.28	$10.28	$67.56
	K-12 Education Kit	$102,084.44	$0.00	$102,084.44	$52,731.43	$154,815.87
	K-12 Safety Kit	$26,166.73	$0.00	$26,166.73	$17,044.73	$43,211.46
	Lighting Outreach Promotion	$221,737.50	$0.00	$221,737.50	$175,744.46	$397,481.96
	Measure Totals	**$350,045.95**	**$0.00**	**$350,045.95**	**$245,530.91**	**$595,576.86**
Home Energy Reports	Home Energy Reports	$58,297.39	$0.00	$58,297.39	$368,692.56	$426,989.95
	Measure Totals	**$58,297.39**	**$0.00**	**$58,297.39**	**$368,692.56**	**$426,989.95**
Beneficial Electrification Pilot Program	Fork Lift	NA	NA	NA	NA	NA
	Transportation Refrigeration Units	NA	NA	NA	NA	NA
	Truck Stop Electrification	NA	NA	NA	NA	NA
	Belt Loader	NA	NA	NA	NA	NA

Program	Measure	Inc. Cost Incentives	Stipend/Other Incentives	Total Incentives	Non-Rebate Costs	Total Measure Costs
	Pushback	NA	NA	NA	NA	NA
	Tow Tug	NA	NA	NA	NA	NA
	Induction Cooktop	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**
Innovative Customer Solutions Framework	Initiative	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**
Load Management Pilot Program	C&I Electric Batteries	NA	NA	NA	NA	NA
	C&I Thermal Storage	NA	NA	NA	NA	NA
	Connected Heat Pump Water Heaters	NA	NA	NA	NA	NA
	Connected Pool Pump Controller	NA	NA	NA	NA	NA
	Connected Water Heater Controller	NA	NA	NA	NA	NA
	EE Smart Thermostats	NA	NA	NA	NA	NA
	Residential Electric Batteries	NA	NA	NA	NA	NA
	Residential HVAC Thermal Storage	NA	NA	NA	NA	NA
	TOU Optimized Smart Thermostats	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**
Education & Outreach	Consumer Education and Outreach	NA	NA	NA	NA	NA
	Online Marketplace	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**
Energy Codes and Standards	Energy Codes and Standards	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**
Generation Improvement & Facility Upgrades	Generation Improvement & Facility Upgrades	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**
Research & Development	Program Development, Analysis and Reporting Software	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**
EE Standard Allowed Credits	EE Standard Allowed Credits	NA	NA	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**	**NA**	**NA**

Table B-6: Recommended Incentive with Min/Max Range for Existing and Proposed Measures

Program	Measure	Minimum Incentive	Recommended Incentive	Maximum Incentive
Efficient Products	Advanced Power Strip	$3.20	$24.00	$32.00
	EE Smart Thermostats	$7.64	$57.28	$76.38
	Energy Star Appliance	$11.08	$55.41	$110.81
	Residential 15K LED Light	$0.67	$1.33	$6.67
	Residential 25K LED Light	$0.65	$1.30	$6.49
	Variable Speed Pool Pumps	$39.76	$198.82	$397.65
	Measure Totals	**NA**	**NA**	**NA**
Existing Homes	Advanced Tune-up	$9.97	$74.80	$99.73
	Custom HVAC	$175.00	$1,312.50	$1,750.00
	DTR	$61.97	$464.76	$619.68
	EE Smart Thermostats	$7.64	$57.28	$76.38
	ER HVAC with QI	$162.19	$1,216.41	$1,621.88
	Energy Star Heat Pump Water Heater	$81.10	$608.25	$811.00
	HVAC with QI	$149.10	$1,118.23	$1,490.97
	Measure Totals	**NA**	**NA**	**NA**
Low Income Weatherization	Weatherization	$486.31	$4,863.10	$4,863.10
	Measure Totals	**NA**	**NA**	**NA**
Multi-Family	Advanced Tune-up	$9.00	$67.50	$90.00
	Custom Whole Building	$39.24	$294.26	$392.35
	DTR	$33.00	$247.50	$330.00
	EE Smart Thermostats	$7.64	$57.28	$76.38
	ER HVAC with QI	$76.56	$574.16	$765.55
	Faucet Aerator	$0.21	$1.58	$2.10
	HVAC with QI	$105.43	$790.72	$1,054.29
	Low Flow Showerheads	$0.41	$3.05	$4.06
	Residential 25K LED	$0.22	$1.64	$2.19
	Measure Totals	**NA**	**NA**	**NA**
Residential New Construction	ENERGY Smart Homes	$166.71	$416.78	$1,667.13
	ENERGY Smart Multi-Family	$166.71	$833.57	$1,667.13
	Measure Totals	**NA**	**NA**	**NA**
Shade Trees	Shade Tree	$4.27	$21.34	$42.67
	Measure Totals	**NA**	**NA**	**NA**
C&I Comprehensive	Advanced Power Strips	$2.60	$19.53	$26.05
	Air-Cooled Chillers	$6.19	$30.94	$61.88
	Anti-Sweat Heater Controls	$8.99	$44.93	$89.86
	CO Sensors	$200.00	$1,000.00	$2,000.00
	CO2 Sensors	$95.00	$475.00	$950.00

Program	Measure	Minimum Incentive	Recommended Incentive	Maximum Incentive
	Cogged V-Belt	$3,620.09	$18,100.44	$36,200.88
	Commercial Kitchen Exhaust Fan	$2,246.99	$11,234.93	$22,469.86
	Computer Power Monitoring System	$978.59	$4,892.93	$9,785.87
	Custom Measure	$5,782.05	$5,782.05	$5,782.05
	Daylighting Controls	$46.92	$234.61	$469.22
	Delamping	$2.40	$12.02	$24.03
	EMS-HVAC Delivery	$0.15	$0.77	$1.55
	Economizers	$64.00	$320.00	$640.00
	Efficient Compressors	$39.21	$196.03	$392.07
	Efficient Condensers	$3.95	$19.74	$39.47
	Energy Efficient Exit Sign	$10.60	$53.00	$106.00
	Energy Efficient ODP Motors	$8.64	$43.22	$86.45
	Energy Efficient TEFC Motors	$22.69	$113.43	$226.87
	Evaporative Fan Controls	$30.77	$153.87	$307.74
	Floating Head Pressure Controls	$9.30	$46.48	$92.95
	Green Motor Rewind	$121.03	$605.16	$1,210.33
	HIDs to T8/T5-Exterior	$20.35	$101.75	$203.49
	HIDs to T8/T5-Interior	$22.39	$111.97	$223.95
	HVAC System Test and Repair	$105.97	$529.86	$1,059.72
	Heat Pump Water Heaters	$191.00	$955.00	$1,910.00
	High Efficiency EER Packaged and Split ACs	$223.43	$1,117.13	$2,234.26
	High Efficiency EER Packaged and Split HPs	$86.31	$431.55	$863.09
	High Efficiency Evaporator Fan Motors (ECM)	$18.65	$93.27	$186.54
	High Efficiency Reach-In Refrigerators and Freezers	$17.88	$89.41	$178.82
	High Efficiency SEER Packaged and Split ACs	$75.15	$375.76	$751.51
	High Efficiency SEER Packaged and Split HPs	$49.79	$248.96	$497.93
	High Performance Glaze	$0.10	$0.75	$0.99
	Hotel Room HVAC Control	$17.92	$89.58	$179.15
	Induction Lighting Indoor	$19.34	$96.71	$193.43
	Induction Lighting Outdoor	$24.27	$121.35	$242.70
	LED Indoor Lights	$1.84	$9.19	$18.39
	LED Outdoor Lighting	$9.16	$45.79	$91.58
	LED Traffic Lights	$6.14	$30.70	$61.40
	LED Tubes Indoor	$1.85	$9.24	$18.47
	LED Tubes Outdoor	$2.42	$12.08	$24.16
	LED Tubes Replacing Fluorescent Indoor	$1.85	$9.24	$18.47
	LED Tubes Replacing Fluorescent Outdoor	$2.05	$10.26	$20.53
	Lab Fume Hoods	$186.14	$930.69	$1,861.38
	Occupancy Sensors	$14.79	$73.97	$147.93

Program	Measure	Minimum Incentive	Recommended Incentive	Maximum Incentive
	PTAC	$10.49	$52.44	$104.88
	PTHP	$12.78	$63.91	$127.82
	Premium T8 Lighting	$2.44	$12.18	$24.35
	Programmable Thermostats	$26.66	$133.29	$266.57
	Pulse Start Metal Halide Exterior	$22.05	$110.26	$220.53
	Pulse Start Metal Halide Interior	$24.66	$123.31	$246.61
	Reduced Lighting Power Density	$176.20	$1,321.52	$1,762.03
	Refrigerated Display Automatic Door Closers	$14.20	$71.00	$142.00
	Refrigeration LED Strip Lighting	$3.84	$19.22	$38.43
	Shade Screens	$0.41	$2.06	$4.13
	Strip Curtain	$1.02	$5.11	$10.22
	VSD Air Compressors	$811.35	$4,056.75	$8,113.50
	VSD Automated Drain Trap Compressor	$70.00	$350.00	$700.00
	VSD Cycling Dryer Compressor	$719.40	$3,597.00	$7,194.00
	Variable Refrigerant Flow	$226.93	$1,134.66	$2,269.32
	Variable Speed Drive Motors	$3,620.09	$18,100.44	$36,200.88
	Vending and Cooler Controls ("Vending Miser")	$18.91	$94.57	$189.14
	Water-Cooled Chillers	$9.97	$49.84	$99.68
	Whole Building Performance	$2,080.00	$15,600.00	$20,800.00
	Window Films	$0.60	$3.00	$6.00
	Measure Totals	**NA**	**NA**	**NA**
Commercial DLC	C&I Demand Response	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**
Commercial Schools	Commercial Schools	$267.54	$2,675.44	$2,675.44
	Measure Totals	**NA**	**NA**	**NA**
Conservation Voltage Reduction	Conservation Voltage Reduction	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**
Behavioral Comprehensive	EE Smart Thermostats	$7.64	$57.28	$76.38
	K-12 Education Kit	$1.43	$10.75	$14.33
	K-12 Safety Kit	$0.63	$4.76	$6.34
	Lighting Outreach Promotion	$0.22	$1.64	$2.19
	Measure Totals	**NA**	**NA**	**NA**
Home Energy Reports	Home Energy Reports	$0.31	$2.30	$3.06
	Measure Totals	**NA**	**NA**	**NA**
Beneficial Electrification Pilot Program	Fork Lift	$1,250.00	$1,250.00	$1,250.00
	Transportation Refrigeration Units	$750.00	$750.00	$750.00
	Truck Stop Electrification	$750.00	$750.00	$750.00
	Belt Loader	$1,100.00	$1,100.00	$1,100.00
	Pushback	$5,000.00	$5,000.00	$5,000.00

Program	Measure	Minimum Incentive	Recommended Incentive	Maximum Incentive
	Tow Tug	$2,500.00	$2,500.00	$2,500.00
	Induction Cooktop	$200.00	$200.00	$200.00
	Measure Totals	NA	NA	NA
Innovative Customer Solutions Framework	Initiative	$0.00	$0.00	$0.00
	Measure Totals	NA	NA	NA
Load Management Pilot Program	C&I Electric Batteries	$12,500.00	$93,750.00	$125,000.00
	C&I Thermal Storage	$175.11	$1,313.33	$1,751.11
	Connected Heat Pump Water Heaters	$175.11	$1,313.34	$1,751.11
	Connected Pool Pump Controller	$21.40	$160.50	$214.00
	Connected Water Heater Controller	$13.00	$97.50	$130.00
	EE Smart Thermostats	$15.28	$114.56	$152.75
	Residential Electric Batteries	$1,250.00	$9,375.00	$12,500.00
	Residential HVAC Thermal Storage	$199.26	$1,494.49	$1,992.65
	TOU Optimized Smart Thermostats	$15.28	$114.56	$152.75
	Measure Totals	NA	NA	NA
Education & Outreach	Consumer Education and Outreach	NA	NA	NA
	Online Marketplace	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**
Energy Codes and Standards	Energy Codes and Standards	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**
Generation Improvement & Facility Upgrades	Generation Improvement & Facility Upgrades	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**
Research & Development	Program Development, Analysis and Reporting Software	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**
EE Standard Allowed Credits	EE Standard Allowed Credits	NA	NA	NA
	Measure Totals	**NA**	**NA**	**NA**

Appendix C. WAP Measures for LIW Program

1. Audit
2. White Roof Coating
3. Installation of LED bulbs to replace incandescent bulb s
4. Duct Replacement
5. Duct Sealing
6. Envelope Sealing
7. HSD Cooler Repair
8. HSD CO & Smoke Detector
9. HSD Door
10. HSD General Repair
11. HSD Installed Stove (Electric Only)
12. HSD Repair Stove (Elective Only)
13. HSD Replace Registers
14. HSD Spot Ventilation
15. HSD Electric Water Heater
16. HSD Upper/Lower Combustion Air
17. HSD HVAC Service (Elective HVAC)
18. HVAC Replacement (Electric AC or Heat Pump)
19. Installed Insulation
20. Low-e Storm Windows
21. Misalignment Repair (batt insulation)
22. Replace Glass
23. Repair Replacement of leaking hot water control valves
24. Relocation of Thermostat
25. Replacement of evaporative cooler roof jacks with damper system
26. Replacement of Refrigerator
27. Installation of Sunscreens
28. Low Flow Showerhead
29. Faucet Aerator
30. Weather Stripping
31. Water Heater Insulation
32. Furnace Filters
33. Door Sweep
34. Pipe Insulation
35. Set-back/Smart Thermostat

Appendix D. Prescriptive Measures for Multifamily New Construction Program

Measure	Requirement
HVAC	16 SEER A/C or greater & 8.0 HSPF
Thermostat	Smart Thermostats
Ductwork	All ducts and air handling equipment must be located in the conditioned space
Envelope Infiltration	6 ACH at 50 Pa
Insulation	Ceiling R-Value: R-38, Wood Wall R-Value: R-19, Floor R-Value: R-13
Windows	0.40 U-Factor, 0.25 SHGC, Equal to or less than 12%WFA per end units and less than or equal to 10% for interior units -- Window shading of 6 feet or greater
Water Heater	Electric Water Heater, 50 Gallons = 0.92EF
Lighting	100% ENERGY STAR Lamps and Light bulbs
Appliances	Five (5) or more ENERGY STAR qualified appliances, light fixtures, ceiling fans with light fixtures and ventilation fans.

Appendix E. Definitions

"A.A.C." means the Arizona Administrative Code.

"Adjustment mechanism" means a Commission approved provision in Tucson Electric Power Company's ("TEP") rate schedule allowing TEP to increase and decrease a certain rate or rates, in an established manner, when increases and decreases in specific costs are incurred by TEP.

"ADOH" means the Arizona Department of Housing.

"APS" means Arizona Public Service Company.

"ASHRAE/IESNA" means the American Society of Heating, Refrigerating and Air-Conditioning Engineers / the Illuminating Engineering Society of North America.

"Baseline" means the level of electricity demand, electricity consumption, and associated expenses estimated to occur in the absence of a specific DSM program, determined as provided in A.A.C. R14-2-2413.

"CFL" means Compact Fluorescent Light bulb.

"CHP" means combined heat and power, which is using a primary energy source to simultaneously produce electrical energy and useful process heat.

"C&I" means commercial and Industrial.

"Commission" means the Arizona Corporation Commission.

"Consumer Education and Outreach" means a program to provide general consumer education about energy-efficiency improvements.

"Cost-effective" means that total incremental benefits from a DSM measure or DSM program exceed total incremental costs over the life of the DSM measure, as determined under A.A.C. R14-2-2412.

"Cumulative Annual EE Standard" means the cumulative annual energy savings by the end of each calendar year as a percentage of the retail energy sales in the prior calendar year.

"DOE" means the United States Department of Energy.

"Demand savings" means the load reduction, measured in kW, occurring during a relevant peak period or periods as a direct result of energy efficiency and demand response programs.

"DSM" means demand-side management, the implementation and maintenance of one or more DSM programs.

"DSM measure" means any material, device, technology, educational program, pricing option, practice, or facility alteration designed to result in reduced peak demand, increased energy efficiency, or shifting of electricity consumption to off-peak periods and includes CHP used to displace space heating, water heating, or another load.

"DSM program" means one or more DSM measures provided as part of a single offering to customers.

"DSM tariff" means a Commission-approved schedule of rates designed to recover an affected utility's reasonable and prudent costs of complying with this Article.

"EE" means energy efficiency.

"EPA" means the United States Environmental Protection Agency.

"GOEP" means the Governor's Office of Energy Policy.

"HVAC" means Heating, Ventilation and Air Conditioning.

"Incremental costs" means the additional expenses of DSM measures, relative to baseline.

"IC" means an implementation contractor, a contractor hired to implement a program.

"KW" means kilowatt.

"KWh" means kilowatt-hour.

"LED" means Light Emitting Diode light.

"Load management" means actions taken or sponsored by an affected utility to reduce peak demands or improve system operating efficiency, such as direct control of customer demands through affected-utility-initiated interruption or cycling, thermal storage, or educational campaigns to encourage customers to shift loads.

"Low-income customer" means a customer with a below average level of household income, as defined in an affected utility's Commission-approved DSM program description.

"MER" means measurement, evaluation, and research. The process of identifying current baseline efficiency levels and the market potential of DSM measures; performing process and program evaluations including the verification of installed energy efficient and/or demand response measures and reported savings; and identifying additional EE research opportunities.

"MW" means a Megawatt, 1,000 kilowatts or 1,000,000 watts.

"MWh" means a Megawatt Hour, 1,000 kilowatt-hours.

"Net benefits" means the incremental benefits resulting from DSM minus the incremental costs of DSM.

"Non-market benefits" means improvements in societal welfare that are not bought or sold.

"Program costs" means the expenses incurred by TEP as a result of developing, marketing, implementing, administering, and evaluating Commission-approved DSM programs.

"Program Implementation" means the implementation of programs including administration, fiscal management of costs for labor, overhead, ICs, or other direct program delivery.

"Program Marketing" means the marketing of programs and increasing DSM consumer awareness (direct program marketing as opposed to general consumer education).

"Planning and Administration" means planning, developing, and administering programs including management of program budgets, oversight of the RFP process, oversight of ICs, program development, program coordination, customer participation, and general overhead expenses.

"Program Development, Analysis, and Reporting" means the research and development of new DSM program opportunities, analysis of existing and proposed programs and measures, and the tracking and reporting of participation, savings, and benefits. Associated costs are essential to comply with the Commission reporting and rules requirements.

"Rebates & Incentives" means payments made to customers or contractors as rebates or incentives.

"RESNET" means the Residential Energy Services Network.

"RFP" means Request for Proposal, the process through which proposals are solicited from contractors or vendors.

The "Standard" means the reduction in retail energy sales, in percentage of kWh, required to be achieved through TEP's approved DSM programs as prescribed in the A.A.C R14-2-2404.

"Therm" means 100,000 Btus (British thermal units).

"Thermal envelope" means the collection of building surfaces, such as walls, windows, doors, floors, ceilings, and roofs, that separate interior conditioned (heated or cooled) spaces from the exterior environment.

"Training and Technical Assistance" means energy-efficiency training and technical assistance for utility employees, contractors, or building officials.

"TEP" or "Company" means Tucson Electric Power Company.

"TOU" means time of use.

"UNS Electric" means UNS Electric, Inc.

"UNS Gas" means UNS Gas, Inc.

All other terms and definitions associated with the 2021 DSM Implementation Plan are contained in A.A.C. R14-2-2401.